

JUN 14 1911

N. E. L. A. Convention Report Issue

VOL. IX. NO. 5

\$1.00 A YEAR

JUNE, 1911

SELLING ELECTRICITY

A Magazine of Commercial Methods for Electrical Men

Published by THE RAE COMPANY, 17 Madison Ave., New York

Six Thousand Series Luminous Arc Lamps for Cincinnati

The largest single order for arc lamps ever received by a manufacturer has just been placed with the General Electric Company by the Union Gas & Electric Company of Cincinnati.

This enormous order for 6000 of the latest types of G-E Series Luminous Arc Lamps, together with a complete mercury arc rectifier station equipment of 9000 lamp capacity, is conclusive evidence of the rapidly increasing popularity of this system.

The installations in several hundred American cities and towns, like Boston, St. Louis, Toledo, Baltimore, etc., indicate clearly a new era in street lighting with a system that has become the acknowledged central station standard.

General Electric Company
Schenectady, N. Y.

3094

More electric vehicles, both pleasure and commercial, are being sold to-day than ever before in the history of the industry, and the biggest factor in boosting the sale of electric vehicles is

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Every electric vehicle that rolls out of the salesroom on to the road is a boost for your business.

"Turn about is fair play." It's up to you and *every* central station man to boost for the Edison Storage Battery.

It simply means saying "One word for us and two for yourself"—for Edison equipped vehicles means a bigger, better "off-peak" load and more profits for you.

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Edison Storage Battery Company

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FOR

Tungsten Lamps

The principal objections to modern lighting units are their harsh glare and unattractive appearance.

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"Kind to the Eyes"

MEFCO will *not* collect dust or tarnish.

Gives maximum efficiency *without* glare.

Harmonizes with fixture finish and interior decoration.

MEFCO *must* be seen to be appreciated.

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H. G. McFADDIN & CO.

43 Warren Street, New York

June



une, 1911





N.E.L.A.

Buckeye Drawn Wire "Mazda" Lamps

THE BUCKEYE DRAWN WIRE "Mazda" is the "last word" in incandescent lamp development. The ductile metal filament has remarkable strength and its ruggedness and dependability make it practical for almost any service.

Members of the National Electric Light Association appreciate, we believe, the service which this Company has rendered not only in developing but in creating lighting business. For half-a-dozen years we have bent our energies, not to the mere selling of incandescent lamps, but to the intensive cultivation of our own and our customers' markets.

With a product of acknowledged superiority, with a reputation for service second to none, with an organization of seasoned experts, we have gained the leadership among lamp manufacturers.

This leadership we propose to hold solely by deserving it.

THE BUCKEYE ELECTRIC CO.

CLEVELAND

CHICAGO - PITTSBURG - DALLAS - BOSTON

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GENERAL ELECTRIC COMPANY

Mazda Lamps

With Drawn Wire Filaments

As a result of several years' continuous endeavor in this company's research laboratory, tungsten metal, formerly brittle and inductile, is now processed in a way that makes possible the manufacture of drawn wire tungsten. The discovery of this process is an achievement of immense value that has for years inspired the ambitions of some of the world's most eminent scientists.

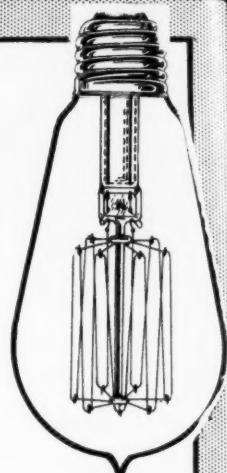
The use of tungsten for incandescent lamp filaments during the past few years has made electric light cheaper and better. But even the best manufacturing methods necessitated the use of alien binding material in a plastic compound to make it possible to press filaments into proper form. As an unavoidable result, the pressed filament has the vital disadvantage of fragility.

But this problem has now been solved, and the drawn wire tungsten filament is the result. This filament copes successfully with the problem of fragility.

Exhaustive mechanical tests have demonstrated that at any period of its life the drawn wire filament is several times stronger under similar conditions than the old pressed filament.

At present the high efficiency of the G-E Mazda lamp remains unchanged, but the drawn wire lamp is distinctly more reliable under all conditions than the pressed filament lamp in all sizes. This is particularly so in the larger sizes and higher voltages.

The drawn wire filament is a continuous wire of uniform size, having loop ends wide and well rounded. This makes possible the use in the Mazda lamp of the successful and practical tantalum method of filament support with its many known advantages. The drawn wire filament is unqualifiedly



25-Watt
Mazda Lamp

General Electric Company

Schenectady, N. Y.

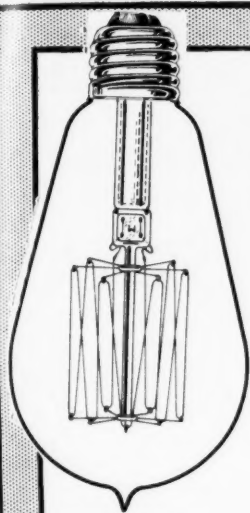


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40-Watt
Mazda Lamp

Mazda Lamps

With Drawn Wire Filaments

the most notable improvement thus far in the development of the G-E Mazda lamp—this filament making it incomparably superior to any other metal filament lamp manufactured.

This radical improvement in the quality of Mazda lamps emphasizes the far-reaching significance of the name Mazda in connection with this company's published declaration of Mazda excellence when the Mazda lamp was announced in January, 1910.

The commercial scope and value of the Mazda lamp have been vastly increased by the drawn wire filament. This great increase in filament strength inevitably enlarges the entire field for Mazda lamps. For residence lighting the usefulness of the smaller units is particularly increased.

Mazda is the trade name chosen to represent the highest standard of quality in metal filament lamps, and to distinguish the product of those manufacturers in a position to constantly maintain this quality through the use of the methods, processes, experience, devices and other benefits accompanying the right to use the name Mazda. The name Mazda signifies the hall-mark of quality in metal filament lamp manufacture, and the Mazda lamp with drawn wire filament represents the highest achievement in its development thus far. The Mazda lamp will be continuously improved so that whatever may be found best suited for the highest grade of metal filament lamps can be designated by the trade name Mazda.

The General Electric Company is now prepared to immediately fill orders for the 25 and 40 watt Mazda lamp having the drawn wire filament. A certain percentage of orders for these lamps in any of the larger sizes can also now be filled, and this proportion will be steadily increased.

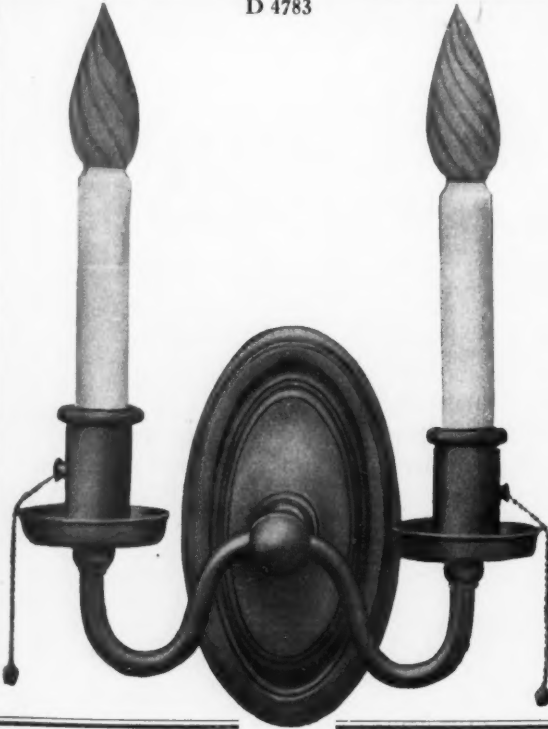
General Electric Company
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3085-B



LARGEST ELECTRICAL MANUFACTURER IN THE WORLD

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what your lighting fixture proposition is, we will be glad to make suggestions.

Fixture Designs of any Price or Style on Short Notice

Dealers drop us a line so we can enter your name on our mailing list, and receive one of our new No. 17 Catalogues ready for distribution soon.

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Manufacturers of

Electric and Combination Fixtures
and Art Glass Shades

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They save their cost many times over to the purchaser, bring you a liberal profit on each sale, and create a permanent source of current consumption.

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20,000,000 Readers in June

A score of nationally known magazines, some of which are shown above, will carry our popular advertising in their June issues. The total circulation of these magazines is over 6,000,000 and a conservative estimate places the number of probable readers at about 20,000,000.

Sewing machine motors, electric flat-irons, toasters, chafing dishes, percolators, tea kettles, etc., are featured in this campaign, the primary object of which is "to extend the field of electric service" by popularizing the greater use of electricity in the home for purposes other than—and in addition to—lighting.

The immediate effect of the purchase and use of these devices on any central

station circuit will be a decided increase in the dayload.

The General Electric Company will continue to co-operate with central station managers who realize the importance of popularizing the daytime use of electricity on their circuits. Electrotyped newspaper advertisements, attractive booklets, posters, wall hangers, mailing cards and other printed matter—enough to conduct a timely and result-getting publicity and selling campaign—will be supplied. This material includes selling aids on the subjects featured in our June advertising. Write for proof books, samples, etc., designating particularly the subjects which you are planning to advertise now.

General Electric Company
Schenectady, N. Y.

3086

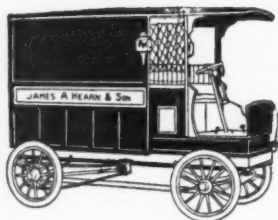
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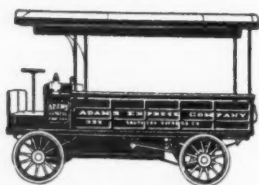


mean profit for the Central Station, *both ways*

—for besides their profitable use in your own service, they are one of the foremost factors today in building up your off-peak load, reducing your operating expense and increasing your sale of current.



In New York City alone there are hundreds of Lansden Electric Wagons in the service of such firms as Tiffany & Co., the Adams Express Co., the U. S. Express Co., Hearn & Son, Macy & Co., Gimbel Bros., Aitken Son & Co., A. A. Vantine, Abraham & Straus, the New York Telephone Co. and many others, and when these firms have occasion to increase their motor vehicle equipment, they almost invariably *re-purchase* Lansden Wagons.



You can safely and profitably recommend Lansden Electric Wagons to every prospective commercial vehicle purchaser in your vicinity as the vehicles that give longest mileage on a single charge of their *Edison Storage Battery* equipment, that are lightest in weight in proportion to their carrying capacity and most economical to maintain.



You need the Lansden in your business — and you need the profits it will bring from every other business in your vicinity. Boost it. Write us today for full particulars.

The Lansden Co., Newark, N. J.
235B High Street

This space is too small to tell you about the new Holophane Street Lighting Units, but we have a booklet containing some very valuable and practical data on the subject which is yours for the asking.

Ask.

HOLOPHANE COMPANY

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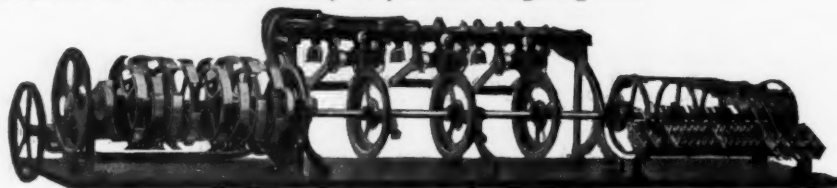
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Holophane Company Ltd., 62 Front Street, W., Toronto, Canada

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give Electric Signs **THAT SNAPPY APPEARANCE** which is appreciated by all live advertisers. Also saves nearly 50 per cent in lighting bills.



RECO FLASHERS produce almost any electrical effect—spelling, chaser borders, script writing, waving flag, and numerous others.

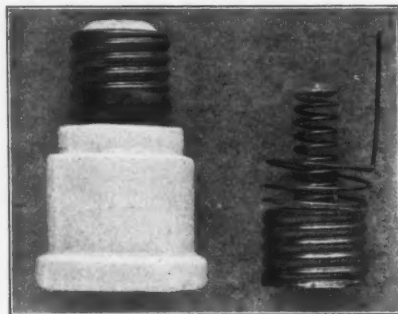
**Solid construction, easy adjustment, self-oiling gears,
minimum attention.**

Reynolds Electric Flasher Mfg. Co.

Largest Manufacturers of Flashers in the World

Main Office and Factory, 617-631 W. Jackson Blvd., Chicago

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"SAVALAMP" Shock Absorber

For Tungsten, Tantalum and Carbon Filament Electric Lamps

If you have trouble with your Tungsten lamps from breaking, use the **Savalamp Absorber**.

NO CHANGE OF FIXTURES

Fits Any Standard Socket

Write for price list

THE LAMFORD SALES CO.

Send Fifty Cents
for Sample

203 Broadway

**AGENTS
WANTED**

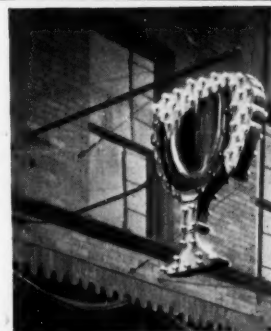
A Haller Suggestion

This all metal electric beer glass, five feet high, with overflowing foam effect, handsomely finished in natural colors, double-faced, wired for two or four cp. carbon lamps, with hanging rig and a. c. motor \$99.00, with d. c. motor \$95.00.

Wired for low volt Tungsten lamps with transformer (a. c. only) \$115. Can be furnished in larger sizes if desired.

Get our designs and prices before ordering any kind of a sign, electric, or transparent glass, in standard or special shapes and of any size.

HALLER SIGN WORKS (Inc.) 704 S. Clinton St.
Chicago, Ill.



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Dog Days and Dividends

Fixed charges are as big in Summer as in Winter—taxes are paid by the year—you've got to keep the salaries going just the same during vacations—and the dividends must be earned in the dog days as in December.

THEREFORE it's up to you to devise ways and means to keep the generators loaded to sell more juice to somebody and get more somebodies on circuit—to make profits in the summer as well as in winter.

The SUMMERTIME Issue of ELECTRICAL PROGRESS

will help your dividend "load factor"—it will equalize the summer slump and keep up the demand for your service at the time when your solicitors are spending their afternoons at the ball games.

The SUMMERTIME Issue of ELECTRICAL PROGRESS

tells about all the hot-weather uses of electricity. It makes people want your service when the mercury is at the thermometer top. It gives folks an entirely new idea of what electricity means in the way of comfort and convenience.

Don't lose the summer opportunity—don't forget the dog-day dividends. Place your order now for

The SUMMERTIME Issue of ELECTRICAL PROGRESS

Published by

THE RAE COMPANY
17 Madison Avenue, New York City

Experience vs. Experiments

The central station manager who calls upon us to cooperate in developing an ornamental lighting campaign, secures the benefit of our wide experience.

Jandus Luxolabra

have been and are being installed in almost every state, in large cities and small. We have exact data to assist you in planning a campaign—to insure the success of your campaign.

It is not our idea to force upon you any cut-and-dry "proposition": on the contrary, we make our plans fit your policy—adapt our experience to fit your peculiar local conditions.

Let our representative explain in person.

Adam-Bagnall Electric Company
Cleveland

New York

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Pittsburg

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SELLING ELECTRICITY

VOLUME IX

NUMBER 5

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The Spirit of the Age Demands

- Plenty of power to do the work at hand quickly.
- That there be no waste of energy when work is not being done.
- That the power used shall afford ease of control and cleanliness.
- That the operation be noiseless.

The Electric Vehicle embodies the modern idea. Just as certainly as American cities grow larger and better, the "electric" both for passenger and for freight service will displace all other types.

The standard lead type storage battery has made great strides both as to application in broader fields and as to constructional improvement.

The "National" is a superior example of the standard type of storage battery. The "National" has grown steadily through 13 years of successful service—has been perfected by specialists who have made battery development their life work; and is built in the most modern storage battery factory in the world.

The United States Light and Heating Co.
GENERAL OFFICES: 30 CHURCH ST., NEW YORK

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Boston

Buffalo
Cleveland

Detroit
Chicago

St. Louis
San Francisco

Factory, Niagara Falls, N. Y.

SELLING ELECTRICITY

Edited by FRANK B. RAE, Jr.

EARL E. WHITEHORNE, Managing Editor

THE COMMERCIAL SECTION A SUCCESS

Meetings Devoted to Commercialism Draw Largest Convention Crowds. Sessions Filled with Interesting Discussion on Important Commercial Topics.

The second day of the thirty-fourth National Electric Light Association convention saw the opening of the commercial sessions. The reception on Monday and the general sessions on Tuesday indicated that the convention would break all records both for attendance and for interest, but it was not until Vice-President Gilchrist called the first commercial session to order on Wednesday that the convention settled down to hard work.

The meeting opened promptly at ten o'clock. Mr. Gilchrist lost no time in bringing the members to order and in calling for the first number on the program, the address of the Chairman of the Commercial Section, Mr. George Williams. The vital points made by Chairman Williams were:

"The Commercial Section is the proper place for the manufacturer and the distributor of consumers' equipment to meet with the men who sell the consumers their electrical service. This is a public utility work. There must be harmony among consumers, central-station men and supply men in order to furnish the right kind of service. This section affords the best opportunities for the commercial men to acquaint manufacturers with the consumers' wants, and the manufacturers

to educate the commercial men. The more of this amalgamation, the quicker good results will come for all concerned.



George Williams
Chairman The Commercial Section

"A perusal of the reports will convince any one that they are compiled with the earnest desire to furnish the truth up-to-date and to perform a real service to the Association and to the industry. They are not one-man opinions or clerical compilations, but the findings of groups of men who have broad experience. They are national. These reports with the discussion upon them will become immediately the

text books of the commercial electrical men of America until the next issue of similar proceedings.

"The Commercial Section is well established but its greatest usefulness is yet to come. It has been necessary for the committeemen to expend most of their activity in organization during the first year. In the coming year there will be a big membership, larger funds and greater ingenuity on the part of the present committees and new members.

"The section will frequently issue special data from expert sources and will furnish a great deal of individual assistance for the asking. Committeemen can utilize the Association Bulletins and no doubt can secure valuable aid from the Electrical Trade Journals. From these and other sources they can supply a genuine all the year-round service such as has never been given in any Commercial Association.

"To the individual, the Commercial Section affords the broadest opportunity to learn the basis of central station policies and proper management, or in fact, any commercial advancement related to electricity. It furnishes the medium by which the commercial man can become a more valuable *local* man after having *nationalized* himself."

Mr. Williams' address was received with satisfaction. In reply to a suggestion from the Chair, the question was asked as to the feasibility of incorporating the work of the Committee on Electrical Solicitors' Handbook with that of the Commercial Section. Mr. J. Robert Crouse stated that this was to be taken up by the Executive Committee of the Association, and that their action would be reported later.

The first report on the program was that of the Committee on Power, presented by Mr. E. W. Lloyd of the Commonwealth Edison Company, Chicago,* which report was heartily applauded.

The question arose as to the difficulty of codifying the various data received on electric power installations. It was suggested that such

data might be very misleading, owing to the peculiar local conditions which might surround any specific installation. Mr. H. J. Gille of Minneapolis suggested that it might be of advantage to gather data on the kwh. per unit of product basis. The discussion was unexpectedly short, owing to the fact that the Committee had done its work so well that no just criticism could be offered. Mr. Lloyd, in closing the discussion, stated that while local conditions would undoubtedly affect whatever data might be gathered, the factor of error would not be sufficient to seriously affect the general results and that if the data be used intelligently, by a man familiar with conditions, no fear of results need be entertained.

The matter of having a central bureau for the exchange of power data was not discussed upon the floor at length, but the consensus of opinion among the members present was that such a clearing house should be established.

Mr. Gilchrist did not hesitate in handling the program as laid out. With the closing of Mr. Lloyd's final remarks he promptly called for the next paper, "Report of the Committee on Electricity in Rural Districts," by Mr. John G. Learned, Chairman.† This paper, covering almost 80 pages of text and illustration, created a profound impression. It was evident, both from the attention given by the delegates present and by the discussion that followed, that service in rural and semi-urban districts is a field which the commercial manager of the future will have to give serious attention. We are unfortunately not able to abstract this paper herewith. It covered the field most thoroughly and carefully, yet rather as a suggestion of future possibilities than as definite instruction regarding present practice.

When the Chair called for discussion Mr. Gille of Minneapolis asked regarding the advisability of extensions in

*Abstract of this report will be found upon page 361 of this issue.

†This Report will be abstracted at length in the July issue of *Selling Electricity*.

getting the business. Mr. Learned replied that the idea of the Committee was not that the business would be sought by extensions of the lines, but rather should be considered as additional business on lines that already form a reasonably tight network over the country.

Mr. S. M. Kennedy of Los Angeles, carried this phase of the discussion somewhat farther. Mr. Kennedy's company serves a very wide territory, some of which may be considered truly rural. He stated that it was the general policy of his company to make extensions for desirable business where 50 per cent of the cost of the construction is paid by the first year's income of the extension. He argued that the construction should be of the most substantial sort, stating that in his experience, \$600.00 to \$1200.00 per mile was necessary to insure the proper quality of material and workmanship.

Mr. Parker of Rochester added some very interesting items to the discussion. He described the reclamation of a swamp of 500 acres in his territory which when drained by electric pumps would be used as truck-farms in parcels of 10 acres. He dwelt upon the fact that any reasonable extension necessary to reclaim such a tract for such a purpose would be justified because of the future business involved. He showed also that the same theory of extensions—on the basis of density and wealth—applied to rural service as to city service, and pointed out that much could be done to expand this business if the underlying factors are studied in their true relationship.

E. L. Callahan, of the Byllesby group of properties, injected a pertinent question when he asked whether the transformer losses on a considerable amount of rural service did not overbalance the income. Mr. Parker stated his belief that the rapid progress which is being made in such suburban farming country will offset such a tendency with the higher education of the children and the growing popularity of the automobile and other urban comforts, conveniences

and luxuries. He believes that the social habits and conditions in such territories will become more akin to those of the city. The lighting load will be prolonged and augmented by the use of the various household and farm appliances and machinery which go to make up the profitable load in



The United Engineering Societies Building, 29 West 39th St., New York City, Where the Convention was Held

the larger community. This has already been the experience in Rochester. Moreover, in districts where irrigation is in practice, this is a potent factor in assuring good profit from this business. Should any central station, however, find that the cost of service is running too high, much expense can often be avoided by grouping several customers on one transformer.

The discussion closed with a few remarks by Mr. Larned and was followed by the reading of the Report of the Committee on Ornamental Street Lighting, by Mr. William Rawson Collier of Atlanta, Ga*. This report covers 42 pages and is an invaluable addition to the commercial man's reference library. It is profusely illustrated with photographs, diagrams

*Abstract of this report will be found upon page 321 of this issue.

and charts, covering the ornamental lighting conditions in towns and cities of various size in different parts of the country.

Mr. V. R. Lansingh of New York opened the discussion calling the attention of the meeting to the importance of light distribution in its effects on the success of an ornamental street lighting installation. As a result of a series of experiments, it has been proved that there is great difference between installations of upright and pendant lamps as shown in the amount of useful light upon the street itself, some tests having shown 35 per cent more actual illumination where the lamps are in the pendant position. Since the success of ornamental street lighting will necessarily depend in the long run upon its practical economy, it is important that this phase of the matter be regarded.

Mr. T. I. Jones of Brooklyn said that he was inclined to consider the matter of illumination as an unimportant factor, the great point at issue in his opinion being artistic beauty and advertising value, since the merchant is mainly interested in the effect of the installation upon business conditions. His experience has been that where you have a well lighted city you may well forget the flux of light and the angle of distribution and concentrate on the type of installation which will create the most effective display from both the aesthetic and the advertising points of view.

Mr. C. N. Duffy of Milwaukee recommended that the central station refrain from introducing too many competitive types of post, as there is very apt to be a difference of opinion on the part of the merchants. In one case in Milwaukee, Corinthian posts were adopted on one side of the street, and upright on the other, which of course is most unfortunate, since the harmony and effectiveness of a decorative street lighting installation is greatly impaired by any lack of uniformity. Mr. Duffy stated that his company was taking this business on

a two years' contract, the rate being \$9.00 per month per post. Posts are installed 50 feet apart and the installation cost to the property owners averaged from \$.20 to \$.25 per front foot. Many posts were purchased outright by the consumers, and on such the rate is \$6.00 per month, including maintenance.

Mr. W. H. Gardner of New York sounded a warning lest the desire for the aesthetic befog the interest of the treasury. Mr. Gardner cited a recent case where after the development of a remarkably effective installation of decorative street lighting, the representative of the central station returned to one of the merchants on this street in regard to installing an electric sign. The merchant stated that he felt that his contribution to the street lighting project was all that was necessary. He saw no necessity for any further electric advertising. This indicates a danger which the central station should recognize and guard against.

Mr. S. M. Kennedy of Los Angeles said that the experience of Los Angeles bore out Mr. Gardner's contention. The first system of decorative street lighting was installed in Los Angeles and its popularity has been so great that it has been unnecessary for the central station to do any soliciting of this class of business. The effect is greatly admired in the city, and it has had a very good influence on the town. At the same time it has proved a serious obstacle to a better sign ordinance. At the present time no signs are permitted which project more than 18 inches from the building line. A recent attempt to secure a more liberal sign ordinance was strenuously opposed by the Municipal League, the organization which has been most active in developing decorative street lighting, and their objection was that it was useless to spend money for ornamental street lighting and then ruin its effect by permitting the installation of large electric signs. This has naturally restricted the development of sign, outlining and window

lighting business, and Mr. Kennedy warns other central stations lest similar campaigns for aesthetic effect should jeopardize the sale of kilowatts. They are proud of the street lighting system of Los Angeles, but they fear that its effect on their income has been costly.

Mr. Ives of Poughkeepsie suggested that if the proposition was advocated as a public improvement and co-operation secured from the city so that the cost might be carried as a regular municipal tax, the merchant would not plead his contribution to street lighting as an excuse for not using a sign. In Poughkeepsie, the city pays both for the installation and the service and it is felt that every citizen is benefited. Mr. Scherck of Newburgh and Poughkeepsie added that in Poughkeepsie decorative street lighting has served the city in another way. Prior to its institution, the trolley poles had been unsightly wooden affairs. As a result of the joint action of the central station, the street railway company and the city, a mile of these wooden poles have been displaced by ornamental iron poles equipped with the decorative street lights.

After the closing remarks by Mr. Collier the session adjourned.

Second Commercial Session

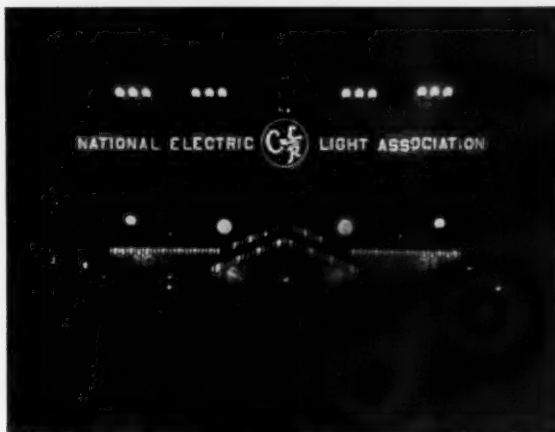
Executive Session Occupies Commercial Men on Second Day

The Thursday morning session of the commercial men opened with Mr. F. M. Tait, second vice-president of the Association, in the chair.

The only report to be presented was that of the Committee on Electric Vehicles*, of which Mr. J. T. Hutchings is chairman. Owing to his absence, however, the paper was read by Mr. Henry W. Peck of Rochester.

The discussion on this report centered about the necessity for adequate data which would show comparisons of cost between gasoline and electric commercial vehicles. Mr. Dave Baker and Mr. Arthur Williams spoke of the work being done by the Electric Vehicle Association in gathering cost data and its relation to rates. The consensus of opinion was that, while rates are a vital factor, the central station should not permit the argument to stop there, but should show comparisons of entire costs of operation. Tires and their relation to vehicle energy consumption were mentioned as an important item, and even insurance rates enter into the comparisons.

Mr. Frank W. Frueauff of Denver



The Hotel Astor was the Social Headquarters of the Convention

called the attention of the members to the fact that the rapid development of commercial vehicles places an ever-increasing responsibility on the central station commercial man, for the field for power wagons must not be sacrificed, and the introduction of a gasoline truck should be considered just as great a misfortune as the installation of a gasoline lighting plant. The Denver Company is making a canvass of the city and keeping records of the delivery equipment of all the local merchants, so that they may be at all times in touch with the opportunities for the introduction of electric vehicles.

*This paper is abstracted on page 331 of this issue.

A variety of experience was cited, covering the advantages of electric commercial wagons. Mr. Callehan, of the Byllesby syndicate, stated that in Oklahoma City some 300 cars were put into service and the revenue increased to \$600.00 per month in a single year. Mr. Stetson, of New Bedford, Mass., has led the way in his territory by employing electricians for his company's service and in two years the only repairs to one large truck was a new set of wheels, costing \$158.00, the truck having run over 2000 miles and done service through a number of heavy snowfalls. In Detroit, 50 electric trucks have been sold this year in competition with gasoline vehicles, although Detroit is practically the centre of the gasoline automobile industry. The impression was very definitely created that all progressive central stations are adopting electric vehicles of various types for all traffic, and that these vehicles are giving excellent results as to cost of operation and reliability of service. The thing now necessary to the more rapid sale of electric wagons is complete, accurate and uniform data.

With the conclusion of the discussion upon the electric vehicle report, the meeting was turned over to Chairmen George Williams and the Commercial Section went into executive session.

Upon motion, the chair appointed the following as members of the nominating committee: H. J. Gille, Minneapolis; H. K. Mohr, Philadelphia; E. L. Callehan, H. M. Byllesby & Co.; E. W. Lloyd, Chicago; Duncan Campbell, Scranton, and C. W. Lee, New York.

The first business of the session was the report of the Membership Committee, of which J. Robert Crouse was chairman. The committee, through Mr. N. H. Boynton, reported that over 1000 members had been enrolled in the section and it was predicted that this membership would be doubled within the coming year.

At the suggestion of Mr. Williams, the chairmen of the various committees

were asked to prepare their recommendations for the coming year's work in the form of resolutions. Mr. Lloyd, chairman of the committee on power, advocated the establishment of a central clearing-house of power data similar to that secured by his committee. This recommendation was passed. It was then decided that other recommendations should be prepared and forwarded to the executive committee for action at the convenience of the several chairmen as the time was hardly ample to submit specific recommendations on all the subjects treated by the Section.

After the reading of a telegram of greeting from Mr. Arthur S. Huey (who was later elected third vice-president of the Association), the meeting adjourned.

Third Commercial Session

*Four Important Reports Presented Thursday
Afternoon*

The Report of the Committee on Residence Business*, of which Clare N. Stannard of Denver was chairman, gave rise to some interesting discussion. Mr. R. M. Searle, of Rochester, showed how important is attention to specific appliances, when he described the various applications of electric fans in his territory. He stated that the value of the fan in the sick room is such that his company offered fans free of charge to the patients of 250 doctors, these fans being supplied upon the doctors' "prescriptions" and returned to the company after the patient is recovered. He also mentioned how, in his city, it has become general practice for housewives to hang the washing near an open window in wet or snowy weather, and blow the hot air from the kitchen stove through the clothes, drying them quickly and at little expense. E. F. McCabe of Titusville, told of his success in securing residence business on a flat rate, controlled by an excess

*Abstract of this report will be found on page 363 of this issue.

indicator. Pertinent suggestions were made regarding the method of gathering and compiling data for the committee's report next year, the consensus of opinion being that the Commercial Section should formulate a thorough plan for this work and secure much wider co-operation of members.

Mr. Frank H. Gale,* chairman of the Committee on Heating, Refrigeration and Kindred Appliance Sales, was next called upon. His report was both interesting and instructive, covering the appliance field thoroughly and pointing out many methods of increasing this class of business. At the conclusion of the report, a moving picture film, belonging to the Commonwealth Edison Company of Chicago, was shown. The film portrayed the breakfast hour of the Newlyweds before and after the installation of complete electric service, and includes views of Mr. Newlywed purchasing his equipment at the famous electric shop in Chicago. At the conclusion of the "show," the Chair suggested that the pictures had proven a very interesting and instructive "discussion" of the paper, and called upon Mr. M. C. Rypinski for the report of the Committee on Improved Wiring and Equipment Standards.†

This report was not discussed, although it was felt that the Section missed much valuable data thereby. At the suggestion of several of the delegates present, *Selling Electricity* has asked some of those most interested to submit written discussion, which will be published in an early issue.

The Committee on Industrial Lighting, through its chairman, M. S. Sloan,‡ presented a brief report into which was incorporated several secondary papers on specific installations. The discussion was largely devoted to these papers and was participated in by Messrs. S. E. Doane, W. D'A.

Ryan, Norman Macbeth, Frank N. Willcox, H. L. Parker and others.

Last Commercial Session

*Last Four Papers Presented on Friday Morning
—Election of Officers*

In spite of the midnight banquet of Commercial Section committeemen on Thursday, the Friday morning session was only 10 minutes late in assembling.

The Committee on Electric Signs,* through Mr. E. L. Callahan, Chairman, reported that there had been prepared for distribution among Commercial Section members a bulletin entitled "Data on Electric Signs." This bulletin includes a large number of reproductions of prominent signs and much valuable data which is so prepared that it is available as a piece of campaign literature to be given by central station salesmen to prospective sign buyers. The bulletin was issued through the financial co-operation of a number of sign manufacturers and incandescent lamp manufacturers. The report also included reference to a model sign ordinance which was submitted.

The discussion of the sign report was particularly interesting. Mr. E. A. Mills of the New York Edison Company and Mr. Frank Hammond of Birmingham, Ala., both spoke of the necessity of having ordinances which would be fair to all parties and which would prevent abuses by irresponsible sign manufacturers or advertisers.

Vice-Pres. Gilchrist resigned the chair to Mr. Williams, and spoke at some length from the floor. After congratulating the committee on its work, Mr. Gilchrist stated that the only excuse a city has for granting the privilege of hanging signs over the sidewalk is that they shall beautify or otherwise benefit the city. He pointed out that lamp letter signs greatly increase the illumination on the sidewalk and reduce the amount of illumination necessary upon the part of the municipality. He said that central stations should, in self-

*Mr. Gale's report will be abstracted in the next issue of *Selling Electricity*.

†Abstract of this report will be found on page 329 of this issue.

‡Abstract of this report will be found on page 361 of this issue.

*Abstract of this report will be found on page 327 of this issue.

defence, favor the hiring of city inspectors to prevent the hanging of signs in any but the most substantial manner. Mr. Gilchrist also recommended that the committee investigate thoroughly the matter of freight rates on electric signs, stating that the present rates are excessive and foster local sign builders at the expense of more responsible manufacturers located in the large cities. While in favor of fostering local industries, he pointed out the danger of signs erected by men of little experience and small responsibility and felt that central station commercial men should be particularly careful that signs of flimsy construction are not permitted to be hung. With more equitable freight rates the larger manufacturers would be able to compete more freely throughout the country and thus sustain the standard of construction.

The artistic effect of signs came in for considerable discussions by Messrs. Parker of Baltimore and Littlefield of New York. Both deplored the erection of flimsy or ill-designed signs. Mr. Littlefield spoke at some length regarding the situation in New York, where considerable opposition has been manifested on the part of civic organizations. He stated that by co-operating with these organizations, he anticipated very favorable results.

Mr. Donkin of Pittsburg mentioned his experience in regard to ordinances, stating that over 75,000 4-cp. tungsten lamps were put in service as a result of liberal ordinance. He declared, however, that sign inspection should be very rigid.

In closing the discussion, Mr. Callahan spoke very plainly on the ordinance question and stated that too many central station men are dodging the issue. He declared that it should be the business of the industry to promote fair but rigid ordinances and to see that in design, material and erection, electric signs should be of the best.

Mr. H. J. Gille created a sensation with his report of the Committee on

Competitive Illuminants.* As is seen from the abstract published on another page of this issue,* the report handles the competitive illuminants, gas and gasoline, in no delicate manner. The discussion was lively from the first. Mr. Sidney Ashe, of the General Electric Co., had evidently prepared his remarks with care, for they were presented from lengthy typewritten notes. He said in part, "There may be a tendency on the part of some central station managers who operate both gas and electric plants to take offense, from a business viewpoint, at the general nature of a report of this kind. If, however, we consider this report from an engineering viewpoint, as a report of a committee composed of gas and electric engineers, it will be evident that no ground for the objection of such a report could be reasonably made. Personally, I should have preferred to have had the committee confine its investigations from a purely commercial viewpoint to the subjects of costs and comparative operating efficiency. Before we attempt to compare illuminants, we should arrive at some common basis of comparison. A suggestion has been made that the average candle-power performance throughout life should be considered as one of the fundamentals. It is average performance that the customer pays for. On this basis, we find, that for high-grade gas mantles, a value of 70 per cent of initial may be taken as a conservative estimate. The magnetite arc lamp is about 80 per cent. The enclosed carbon arc about 78 per cent and tests which I have recently had made on dc. mercury vapor tubes show 51 per cent, and for ac. mercury vapor tubes, 75 per cent. Coming to the 60 and 100-watt tungsten lamps with pressed filaments, we find an average candle-power performance which is almost uniform, due to the peak in the candle-power curve. With the drawn wire filament, this peak had been almost eliminated, resulting in increased life, but slightly

*Abstract of this report will be found on page 341 of this issue.

decreased candle-power performance."

Mr. Norman Macbeth, now connected with the Westinghouse interests but previously in charge of the illuminating engineering work of the Welsbach Company, warned the delegates that the report under-rated competition and should be received with care. He denied the authorship of one of the tables ascribed to him in the report, and stated that the arguments advanced to prove that electricity is practically as cheap as gasoline, were in effect erroneous. Mr. Leon Scherk, of Newburgh, said that the report would not stand the analysis of well-informed gas or gasoline men, in which contention Mr. G. S. Barrows concurred. Mr. Callahan supported the report, saying it is the kind of thing the central station commercial man needs as campaign literature and Mr. George A. Sawin, a member of the committee which offered the report, stated that the figures represented service conditions and not the laboratory conditions under which most tests of illuminants are made. A motion was made by Mr. Thomas Hawkins of Portland, Me., that the report should be referred to a committee for correction before being accepted and published. In view of the fact that the report had already been issued by authority of the Association, this motion was lost.

Mr. C. W. Lee, the dean of central station advertising, offered a very interesting and well-illustrated report of the Committee on Advertising* which drew out brief but interesting discussion. Mr. F. H. Gale pointed out the willingness of manufacturers in almost every line of appliance manufacture to co-operate with central stations by supplying direct advertising and mailing same to central station prospects. J. Robert Crouse described the co-operative "electrical page" in the Cleveland newspapers in which the central station, electrical supply men and local manufacturers combine to publish a weekly page containing in-

teresting and instructive reading matter as well as advertisements. Such a co-operative page was run in the Buffalo papers and in the Cleveland papers has been running for two years. It has done a great deal to educate the public to the advantages of electric service and has been profitable to all who participated. Chairman George Williams took the floor to congratulate the committee on its work.

The closing commercial report of the convention was that of the Committee on the Functions of a Sales Department.† As the report dealt only with sales departments in cities of 100,000 population or over, the discussion was naturally somewhat restricted. The matter of salesmen's salaries was the feature most discussed, it being the consensus of opinion that salary plus commissions represents the fairest basis and the one most likely to keep the salesmen aggressively at work. In closing the discussion, Mr. T. I. Jones, chairman of the committee, said that he believed it better to pay a few good men good salaries than many poor men poor salaries, and that the men should also have the incentive of knowing that promotions would always occur within the organization rather than from without.

The Chair called for the report of the nominating committee, which presented the following ticket:

Chairman: H. J. Gille, Minneapolis General Electric Company.

Vice Chairman: S. M. Kennedy, Southern California Edison Company.

Secretary: Frank B. Rae, Jr., *Selling Electricity*.

Executive Committee:

Joseph F. Becker, United Electric Company.

E. L. Callahan, H. M. Byllesby & Company.

Duncan Campbell, Scranton Electric Company.

J. Robert Crouse, National Electric Lamp Association.

Frank H. Gale, General Electric Company.

*Abstract of this report will be found on page 334 of this issue.

†Abstract of this report will be found on page 339 of this issue.

T. I. Jones, Brooklyn Edison Company.

E. W. Lloyd, Commonwealth Edison Company.

C. W. Lee, New York.

H. K. Mohr, Philadelphia Electric Company.

M. C. Rypinski, Westinghouse Company.

George Williams, Henry L. Doherty & Company.

The report of the nominating committee was unanimously accepted, and the first convention, in which the Commercial Section had charge of the commercial program, adjourned.



John F. Gilchrist
President National Electric Light Association

N. E. L. A. Officers for 1912

The annual election of Officers of the National Electric Light Association was held at the Friday afternoon General Executive session. The following gentlemen were elected to serve for the ensuing year:

President: John F. Gilchrist, Commonwealth Edison Co., Chicago.

First vice-president: Frank M. Tait, Dayton Lighting Co., Dayton, Ohio.

Second vice-president: Arthur S. Huey, H. M. Byllesby & Co., Chicago.

Treasurer: Geo. H. Harries, Potomac Electric Power Co., Washington, D. C.

Secretary: T. Commerford Martin.

It is reported as practically decided that the Convention in 1912 will be held in Seattle, Wash.

Final Registration Figures

The total registration recorded for the Thirty-fourth Convention was 5,149. This was at the closing of the registration booth at 5:30 Friday evening, and it is quite probable that, owing to the constant crowds in the lobby of the Engineering Societies Building, some of the delegates failed to register. The attendance was most gratifying to the officers of the association, being nearly double that of the St. Louis meeting last year where the total registration was 2,644.

The Doherty Medal

An interesting event of the second general session of the Convention on Tuesday was the presentation to Mr. Charles J. Russell, of the Philadelphia Electric Company, with the gold medal given by Mr. Henry L. Doherty for the best paper read before a company section.

Mr. Russell's paper, which was selected unanimously by the committee of award, is entitled "Load Factor, Diversity and Power-Factor," and was read by him before the Philadelphia Company Section in April, 1909. Twenty-nine papers were submitted to the committee, which was composed of Mr. W. C. L. Eglin, Mr. Louis A. Ferguson, Mr. Sidney Hosmer, and Mr. W. F. Wells.

The medal, which is of gold, is two inches in diameter.

Some Convention Statistics

The association has reached a total membership of practically 9000, and the registered attendance at the New York convention was 5149. This is an attendance of 56 per cent and better than 100 per cent more than last year.

President Freeman in his annual address stated that each session-hour this year represented an expense of \$5,000.

Midnight Banquet

Messrs. J. Robert Crouse and George Williams entertained the Association officers and Commercial Section committee chairmen and committee members with a banquet at the Hotel Martinique Thursday night and Friday morning.

In order not to conflict with the several theatre parties of the evening, the affair did not start until one minute before midnight.

About 150 guests were present, including President Freeman, Vice-Presidents Gilchrist and Tait, Secretary Martin and representatives of a number of electrical journals. The principal feature of the occasion was the presentation to Mr. A. S. Huey, of H. M. Bylesby and Company, Chicago, of a handsome two-handled silver loving cup, donated by Messrs. Williams and Crouse to the member of the section bringing the largest number of members into it. Mr. Huey secured 107 Commercial Section members and Mr. George Williams 106 members.

The cup was presented by President Freeman, but as Mr. Huey was unable to attend, owing to illness, he was represented by Mr. E. L. Callahan, who served gracefully as proxy.

Prizes for Gas Installations

A series of cash awards, aggregating \$220.00, is offered in a competition recently announced by the publishers of *Progressive Age*.

The contest is upon window and interior lighting with single mantle gas lamps and will doubtless be of interest to the commercial men of various combination companies. The money is to be divided into six prizes each for window lighting and interior lighting, ranging from \$50 to \$5, and the decisions and awards will be made by a committee of three well-known gas men, Glenn R. Chamberlain, of Grand Rapids, H. K. Dodson, of Baltimore, and Ewald Haas, of Milwaukee. The contest, which does not include residence lighting, will close in July.



Under this title and cover, the New York Edison Company contributed to the members and guests at the convention a souvenir booklet, modestly described as "An Illustrated Handbook of the City, Together With Notes on the Electric Industry Therein and Thereabout." But it is an artistic treat that will be long treasured by every recipient.

The book contains 160 pages of illustrations and comment. There are etchings, photographs and studies in black and white, with several gems in color, all but the latter printed over tint. The cover is a remarkably fine piece of embossing. The descriptive matter is cleverly written and quite as entertaining and instructive to the average New Yorker as to the visiting stranger.

Solicitor's Handbook

At the second general session of the Convention on Tuesday, the report of the solicitors' handbook committee was presented by Mr. Arthur Williams of New York. Special mention was made of the added material on electric vehicle, load factor, diversity factor,

garage and illumination in the latest issue of the handbook. Mr. Williams also called attention to the insertion of articles on the principles and practice of modern lighting, provided for the benefit of the solicitor.

A lengthy discussion as to the best means of giving members new information secured from time to time for the handbook ended in the topic being referred back to the committee. There is some talk of having the Handbook Committee co-operate with the Commercial Section though no definite steps have as yet been taken in that direction.

Meeting of Class D Members

Half a hundred Class D members of the Association gathered together about noon Thursday in the "summer garden" of the Engineering Societies Building for the annual meeting of their section. Mr. J. C. McQuiston, of the Westinghouse Companies, presided, and the treasurer's report and minutes of the last meeting were read by Mr. Walter Neumuller, secretary and treasurer of the Class D membership.

A discussion of the advisability of holding an exhibit at the Seattle convention next year was opened by Chairman McQuiston and taken part in by Messrs. Charles Blizzard of the Electric Storage Battery Company, W. M. S. Miller of the Allis-Chalmers Company, Frank H. Gale of the General Electric Company, and Hugh M. Wilson of the Electrical World. Final decision was not reached, but it was the sense of the meeting that such an exhibit would be desirable.

Big Rejuvenation at Coney Island

A feature of the convention that appealed to all Rejuvenated Sons of Jove was the dinner and rejuvenation on Thursday evening at Coney Island. It had been originally planned to hold this function at Dreamland but the destruction of that famous park by fire only seven days before, required a change in the program. The scene

was shifted to Reisenweber's Casino and a large company sat down to dinner at 6:30. The Rejuvenation commenced at 8:30 and 110 candidates were initiated.

The membership in the Jovian Order has now reached nearly 5000.

Inter-Auditorium Electric Signaling

There were three separate auditoriums in almost constant use during the convention and to facilitate keeping in close touch with the proceedings of parallel sessions all auditoriums were equipped with telephone and bulletin-board service, by means of which the name and subject of each speaker was continuously displayed at the front of each hall. The bulletin was changed as rapidly as the papers and committee reports were altered in any particular session, so that delegates were able to avoid missing any topic of special interest.

The Convention Daily

The Convention Daily this year was published by *The Electrical World* as its contribution to the convention and was a great success. Five morning editions were issued, devoted entirely to the news of the day and the registration list, no advertising being carried. Copies of the *Daily* were distributed early each morning by electric delivery wagons loaned by the United Electric Light and Power Co. and the New York Edison Co. and each member found a copy in his hotel mail box at breakfast time.

WANTED—Young man wants position as Asst. Mgr. or Supt. of Central Station. Would like to organize new business campaign, familiar with all current selling devices. Care L. G. H., Selling Electricity.

Abstracts of Commercial Papers

*These are the Commercial Papers Which Attracted the Attention of the
Commercial Men at the New York Convention*

Report of Committee on Ornamental Street Lighting

William Rawson Collier, Chairman

What constitutes a strictly Ornamental system of lighting? In brief, such a system may be described as one where the beauty of the system by day and by night and the spectacular effects obtained are of as great importance as the actual efficiency—in other words, where a part (perhaps a smaller part) of the light is chargeable to illumination and a part to advertising. The three systems in common use at present for Ornamental Street Lighting are the Arc System, the Festoon or Arch System and the Post System.

In the Arc System either the magnetite or flame arc is used almost universally. Such systems, as those in Toledo, Ohio, and St. Louis, Mo., are typical of the use of the magnetite lamp, and there is little doubt but that all would class these systems as ornamental. In Newark, N. J., we have an example of the use of the flame arc for ornamental lighting, while in Boston we see an entirely different system of flame-lamp illumination.

The main advantages of the Arc System are the ease with which it can be made extremely spectacular, its very high efficiency and its low cost of maintenance. The illumination is brilliant and intense and from a strictly advertising standpoint the effects obtained are most satisfactory. The high first cost of such a system, however, if the lamps are placed very close together, and the fact that to obtain a very even degree of illumination there must of necessity be an extravagant use of light, have prevented this system from becoming extremely pop-

ular. But it is fair to predict that within a few years such systems will be installed in a number of cities throughout the country.

The Festoon System of ornamental



William Rawson Collier
Con. Agt. Georgia Ry. & Elec. Co., Atlanta, Georgia

lighting is not new, but few new installations are now being made. While the festoon lighting is very attractive at night there are several great drawbacks. The system, whether it be a series of arches built of steel work or of arches suspended from stranded wire, will begin to rust within a few years, and unless it be thoroughly overhauled at intervals, at a considerable cost, it becomes dangerous. The system always appears to be temporary—as if erected for a carnival—and instead of beautifying the streets during the day really serves exactly the opposite purpose. It is difficult also to make the lamps remain in regular positions, and a severe wind storm not only causes the lamps to swing out of line, but increases the breakage. In short, this system has certainly served its purpose—that of awakening the cities to a realization of the value of ornamental street lighting—but

this purpose has now been accomplished, and the trend is towards a more permanent and more simple system—one that will be ornamental by day as well as by night.

The Ornamental Post System, by far the most popular at present, is not really a new idea. In the days before electricity became most popular for street lighting, all cities using gas for street illumination adopted what was practically a counterpart of the present ornamental post system.

We are all more or less familiar, I believe, with the progress made in Minneapolis slightly over two years ago by the adoption of the ornamental post system. The success achieved by this installation has resulted in its widespread adoption, not only in the large cities, but also in some of the smaller towns where, until recently, no thought had been given to this branch of civic improvement.

The advantages of this system are many, the most important being permanence, beauty by day and night, even distribution of light, comparatively low installation and maintenance cost and great advertising value. Many forms and designs of posts have been adopted, but the post having five tungsten lamps seems to be the most popular. In some cases three-light posts are used in the center of the block and five-light posts are used on the corners, while in Washington, D. C., we see the one-light post adopted.

Numerous methods of wiring for the posts have been adopted. In a few cases the posts have been connected to an overhead system, but this detracts greatly from the beauty of the system and it is to be discouraged. The general practise seems to be that of placing the wires in iron or fiber conduits laid in a shallow trench just inside of the curb line, or in the gutter, making taps to transformers or the underground system at regular intervals. In some cases the lights are turned on and off at the station either by direct switches or by remote control switches; in other cases time switches are installed, these switches

each controlling one section of the system. The most popular method of controlling the lights, however, seems to be by patrol.

As an example of a recent installation may be mentioned the one at Atlanta, Ga. Here the system covers approximately 13,000 feet and has a total of 239 ornamental posts, each post carrying five 100-watt lamps in opal globes. The system covers seven of the principal streets in the center of the city. Practically throughout the entire system the wires for each block were laid in one-inch conduit in a shallow trench next to the curb, the trench then being filled with concrete. The conduit was continuous from post to post, each post being wired in parallel on a 230-volt, direct-current underground system, with the five lamps of each post in series of 230 volts.

In some cases the conduit was supported on the wall of basements, where the basement extended under the sidewalk, and in several cases it was found necessary to lay the conduit in the gutter. The bases for the posts were cheaply made of concrete, the bolts for holding the posts being set in the concrete and being properly located by means of a wooden form. The mains supplying the lamps on each side of the block were connected either direct to the underground distributing system at a man-hole or to the bus-line of some building in the block, where such a line was large enough to carry the load. In the base of one corner post on each side of the block was placed a combination double pole switch and cut-out, this switch controlling all posts on one side of the block.

To provide for temporary festoon lighting, if such is wished at any time, each post has a tap brought out of the underside of the outside arm. After the posts were erected it was found that moisture formed and was caught in the globes and collected in the ornamental tips of the arms. This was not discovered until after the first freeze, when a number of the ornaments were broken by the freezing

water. All of the arms then had a one-fourth inch hole drilled at their lowest point and no further trouble has been experienced.

The installation of this system was paid for by the property owners and tenants along the streets where the system was installed, payments being based upon a total cost of \$1.92 per front foot; 96 cents being paid by the property owners and 96 cents being paid by the tenant. When the system was completed it was turned over to the city, which contracted with the central station for the lighting of the posts at the rate of \$45 per post per year, this to cover cost of current, lamp and globe renewals, turning lights on and off, washing globes twice each month and painting posts once each year. The lamps are burned from dusk until midnight every day, a total of approximately 2000 hours per year.

There is one vital question in the installation of Ornamental Street Lighting that has not been standardized and this question is of the greatest importance to the Commercial Section. I refer to the question of who should pay for the installation of the system, who should pay for the maintenance, what should be the form of agreement and what the best method of obtaining signatures.

Various methods of payment have been adopted. In some cases the Merchants' Association pays for the installation and its maintenance, in other cases the city pays for the maintenance and the Merchants' Association pays for the installation, in other cases the property owners alone pay for the installation and, in still other cases, the city levies a special tax to cover the installation of the system and its maintenance. Local conditions must decide the question of who pays; in every case the answer being, "The parties who are most anxious to get the light." The only warning that need be given along this line is that against receiving the individual signatures of the merchants in the street for the maintenance. After a short time, if such a course is followed, the central station will find that, due to some merchants moving and others becoming disinterested in the system, only a small amount of the money due can be collected and the company's only recourse will be to turn out part or all of the lights, thus destroying the beauty and utility of the entire system. If possible, make contract with the city or the Merchants' Association; if this is impossible, make contract with one or two responsible merchants in each block and let them



One of the Striking Illustrations in Mr. Collier's Paper. Night view in Atlanta

look after the individual collections.

Regardless of who pays, the unit of payment should be the front foot, and this also should be made the unit of cost of installation. The reason for this is that if the post is made the unit of payment of installation, unequal lengths of blocks may place unequal burdens upon tenants and property owners on the same street, and this always causes dissatisfaction. Of course, where a contract is made with the city for the maintenance of the system, a cost per lamp or per post can be made without encountering difficulties.

As a matter of caution, all central stations soliciting ornamental street lighting should do so, if possible, with their own solicitors. If this work is done by some outside party complications are almost certain to arise. Outside solicitors cannot be well acquainted with local conditions; the chances are that they will not understand the local feeling and that they will not follow closely the policy of the central station. These conditions, coupled with the fact that such solicitors may make statements and promises that the central station cannot fulfil, will surely cause dissatisfaction and loss of money when the time comes to collect for the installation or maintenance of the system.

As a matter of reference several forms of agreements* are added, in the hope that they will assist somewhat those central stations contemplating the installation of a system of ornamental lighting. The forms must, of course, be changed to meet local requirements, but they tend to cover the main points in question.

In conclusion, the Committee desires to acknowledge the great assistance furnished it through Mr. J. A. Hunnewell, Lowell Electric Light Corporation, by his paper on "Notes on Special Decorative Street Lighting," read before the New England Section of the National Electric Light Association.

*These and other forms of contract will be published in later issue of *Selling Electricity*.—Editor.

The Committee also wishes to emphasize the fact that it will be glad at any time to furnish member companies with any information that it may have available on Ornamental Street Lighting.

Central Station Electric Vehicle Department Accounting

By Hermann Spoehrer, Union Electric Light and Power Co., St. Louis, Mo.

The importance of electric vehicle business to the central station, having been fully demonstrated, it devolves upon the Accounting Department to create a system of accounting for the purpose of analyzing the several phases of this new enterprise.

The company with which I am connected engaged in the business of selling and caring for electric vehicles in 1907. Today we operate a garage for electric passenger cars exclusively, located in the residential section, and one for electric power wagons exclusively, near the commercial center of the city.

Our rates for garage service on a standard type of passenger car, is \$30 per month, with an additional charge of \$5 where the vehicle is called for and delivered. This includes charging, cleaning, oiling, greasing and dressing of commutator, battery inspection, and also the furnishing of electrolyte, distilled water, oil and grease. For cars on dead storage, a charge of \$10 per month is made. If, however, the battery is to be laid up, an additional charge of \$1 per cell is made for cutting down, drying out, re-assembling and bringing to full charge, including the furnishing of new wood separators, with an extra charge for the supply of any jars or rubber separators which may be required or repairs to battery trays.

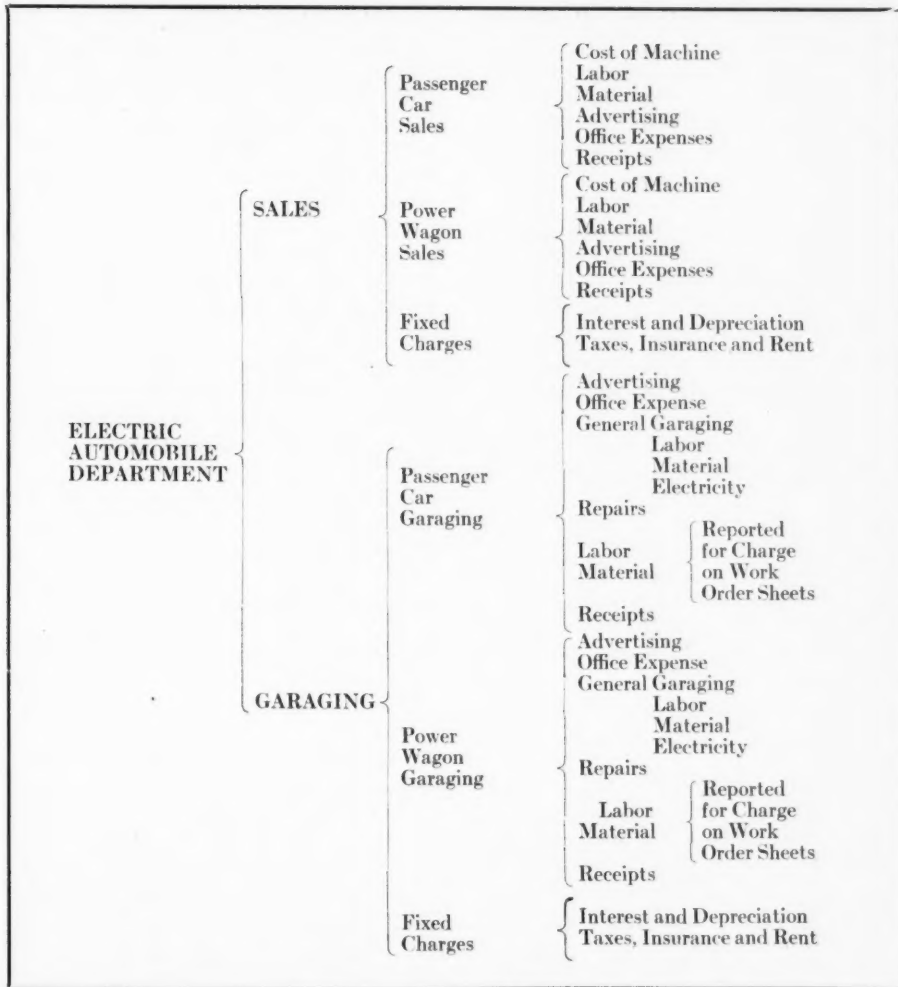
For electric power wagons, charges are as follows:

For 1000 to 1500 pound wagon, \$45 per month; for 2000, 2500 and 3000 pound wagon, \$50 per month; for 4000 pound wagon, \$55 per month; for 7000,

\$60, and 10,000 pound wagon, \$65 per month.

In the case of vehicles not regularly kept at the company's garage, a charge of 10 cents per kilowatt hour is made for an individual battery charge, but not less than \$1. An additional source of revenue to the garage is pro-

The company also has upon its lines upwards of eighty private rectifier installations in the residence district, producing an average monthly revenue of \$8.50. The company is also engaged in selling electric passenger cars and power wagons. In the conduct of the company's electric auto-



duced by charging spark and lighting batteries for gasoline cars, for which a charge of 50 cents per battery is made.

In addition to the company's garages, there are eleven other public garages caring for electric vehicles, revenue from three of these running approximately \$5,000 each per annum.

mobile business, the system of accounts outlined above has been employed.

Under "Passenger Car Sales," the "Cost of Machine" represents the cash cost f. o. b. the company's garage, including freight. "Labor" represents salesman's time, a portion of the de-

partment manager's time, and labor applied at the garage prior to the sale of the car; it also includes a flat monthly charge for garaging demonstrating cars. "Material" includes all items used for demonstrating cars, and in connection with the sales room. Proper depreciation charge is also made against demonstrating cars.

"Advertising" includes all charges for advertising, as well as current supplied to auto signs owned by the company. "Office Expenses" includes the portion of light, heat, telephones and miscellaneous supplies properly chargeable to the sale of pleasure vehicles.

"Receipts" indicates gross income from sales.

Under "Fixed Charges" are included interest and depreciation on the garage equipment, investment, taxes, insurance and rent, which are apportioned between the sales and garaging accounts.

The subdivisions of "Power Wagon Sales" are in every way similar to those of "Passenger Car Sales."

Under the heading "Passenger Car Garaging," "Advertising" includes such charges for advertising as are properly chargeable to the garaging end of the business, and electricity for signs owned by the company which exploit the garage.

"Office Expenses" includes light, heat, stationery, etc., for the garage office.

"General Garaging" includes labor, such as charging, cleaning cars, oiling, greasing and dressing of commutator, battery inspection, etc., a portion of the department manager's time, clerical help, etc. "Material" includes acid, distilled water, sponges, greases, chamois, water, car-fare, etc. "Electricity" represents the current used in charging, lighting and operation of elevators and special machinery in garage.

Under "Repairs" there is issued a "standing work order" for each car. All items not chargeable to routine garaging are charged to this account, and at the same time entered upon the

proper work order sheet and billed to the customer.

"Receipts" includes all income.

The "Power Wagon" account is subdivided in an exactly similar manner. "Fixed Charges" are treated similarly to the corresponding item explained under sales account.

In the operation of a public garage, accurate data is indispensable in the settling of disputes arising from alleged mis-handling of customers' cars. With this in view, we have developed a system of record-keeping, the essential features of which are as follows:

A general charging sheet is kept, which shows the actual charging rate and voltage on every battery on charge in the garage during the twenty-four hours. The readings are taken for this sheet every thirty minutes, night and day. Included on this is the average specific gravity of the different battery cells at the finish of the charge, and the maximum temperature reached by the battery during the course of the charge.

A second record sheet is used to show the condition of each cell in every battery in the garage, this record being taken every ten days. On this record is shown the voltage, specific gravity and temperature of the individual cells in each battery, readings being taken when the battery is supposed to be fully charged, and on charge at the finishing rate.

A third record is in use for battery discharges. This last record is only drawn off when conditions indicate its necessity. The record shows the condition of each individual cell in the battery when it is supposed to be fully charged, and while charging at the finishing rate, the temperature being taken into account. The discharge is then run, and a reading taken each hour for four or five hours, according to the rating of the battery. These three records constitute our battery data.

A fourth record is kept, showing the time each car in the garage leaves and returns, the odometer reading on each car, the days on which the car is

washed, the days on which the battery is watered, the commutator inspected and the car oiled and greased. On this record is also noted any special items, such as broken parts and how the accident occurred.

Another record of great importance is the tire record. This shows the kind of tire, its number, the date applied to the wheel, which wheel it is put on, and the odometer reading on that date. When this tire is taken off on account of blow-out, the total mileage the tire has made is noted on the record, and if any adjustment is secured from the tire company, the amount paid for a new tire is shown on the face of the record.

No attempt has been made to compare the actual operating costs of electric and gasoline commercial wagons, for the reason that, up to this time, the accounting methods have been so vastly different that results were not comparable.

Report of Committee on Electrical Advertising

By E. L. Callahan, Chairman.

Your Committee present to members of this Section, for their approval, a Bulletin on electric advertising which has been compiled for the express purpose of assisting them in their daily efforts to obtain a larger and more profitable electric sign business. A distribution has been made of one copy of the bulletin to each member of the Commercial Section.

This Bulletin contains reproductions of recognized successful electrical displays now being operated in various parts of the country. It is not, nor should it be called, a hand-book of technical data, but it should be of value to the new business or commercial sign expert in closing contracts. Not only is it believed that this Bulletin will be of value in the hands of the expert, but it is believed that it will have a helpful influence in closing contracts when placed in the hands of prospective users of electrical display

advertising. With this in mind, your Committee have, in the preparation of the Bulletin, been careful to eliminate reference to central station revenue and rate of charge for service.



E. L. Callahan,
Mgr. New Bus. Dept. H. M. Byllesby & Co.,
Chicago, Ill.

It is hoped that the engineering data contained in this Bulletin will be recognized as valuable assistance in preparing specifications for electrical displays of merit. More attention should be paid to the mechanical and artistic design of electric signs, for the reason that the placing of unsightly signs will be ultimately detrimental to the business. Every electrical display should be properly lighted, for there is danger of both under and over illumination. It is feared, unless more care is exercised by central station companies, sign manufacturers and contractors than is evidenced by frequent present-day practise that severe and adverse municipal legislation will become effective. Regulation of the right kind is good for any business, and it is the opinion of your Committee that, while central station companies have not usually been the aggressors in seeking sign legislation, they should endeavor to have sign ordinances passed by city and town government to the end that municipal and fair legislation be enforced. The result will be beneficial to all concerned.

In order to place before you for criticism and possible adoption by your city government, your Committee submit, as a suggestion only, a model sign ordinance*. We believe that annual inspection of electrical displays is essential for proper protection of citizens; that too much care cannot be exercised in the manufacture and hanging of signs; that electrical displays should be illuminated at least until 10 p. m. of each day and also, that an adequate amount of illumination should be required in every instance, not only for the proper illumination of the displays themselves, but so that there will be considerable general benefit to the city through having sidewalks and streets partially illuminated from this source. There is a general tendency toward larger and spectacular designs in signs, and, in order that signs do not offend the eye and are not hung so as to obscure other displays by day or by night, legislation should cover their size, location and general appearance.

Your Committee believe that it is the duty of every central station company to refuse to connect its service to an electric sign or similar electrical advertising display should any part of the installation not meet with the requirements of the National Board of Fire Underwriters, or comply with the rules and requirements of the local fire department and department of electricity. It is not only its duty as a public service corporation in assisting to preserve public safety, but it is its privilege in the protection of its own business and interests.

Electrical advertising at present is a high type of the art. Do not let it lose its present dignity because of inferior workmanship. Careful investigation has brought to light the fact that there are electrical displays in existence which are far from satisfactory to owners and a menace to the growth of the business. These displays are usually the result of the

clumsy effort of a "tinsmith." It is the belief of your Committee, therefore, that, in order to maintain a high standard in electrical advertising, and in order to protect the recognized manufacturers of high-grade signs and electrical advertising displays, central station companies should prevent sketches and specifications for signs from reaching the hands of the "tinsmith" or any other sign manufacturer. It is only just and right that the manufacturer should be protected to this extent, for it must be remembered that each manufacturer maintains a department which is at the disposal of central stations for the purpose of carrying out various ideas in the particular design of signs and display advertising that will be mutually beneficial in building up their business.

The subject of display advertising and its growth, from a commercial standpoint, is vital to all central stations. The subject of municipal legislation must receive serious attention in order to insure profitable growth of the business. The central station company can protect its business, however, by anticipating adverse legislation through using its influence in causing reasonable ordinances to be passed.

It will be noted that your Committee have suggested the accomplishment of a small portion of the "plan" suggested by Mr. Frank B. Rae, Jr., in his paper read last year before the St. Louis Convention of this Association, the reason being that it was thought best to make haste slowly in our efforts to interest national advertisers in electrical advertising, particularly in view of the fact that, to carry out the plan, a considerable amount of money would be necessary. To indicate what actual results this Committee will be able to obtain, however, we call your attention to the fact that several national advertisers have approached us for information regarding space for location of electrical displays and rates for maintaining same, and through our efforts, one large national advertiser has contracted to

*This model sign ordinance will be published in an early issue of *Selling Electricity*.

place a large sign, containing over two thousand lamps, in about twenty-five cities.

Report of the Committee on Improved Wiring and Equipment Standards

By M. C. Rypinski, Chairman

With the advent of high-efficiency illuminants and the development of electrical appliances, it becomes necessary for the central station to take an interest in the consumer's wiring, to the end that the application of such illuminants and devices may not be handicapped. Also, the central station finds that a new class of consumer can be reached, that is, the person with very moderate means, if the cost of wiring equipment can be reduced.

These considerations have given rise to the appointment of this Committee, and the Committee find, on going into the situation, that their efforts for the present at least, can best be directed to the improvement, standardization, and, if possible, cheapening of wiring practise and equipment for the residence consumer. With this in mind, the Committee sent out a circular letter containing eight questions to all Class "A" members, numbering approximately one thousand (1000), and received 160 replies.

Taking up these questions one by one, we find under Question No. 1 (Have you a system for aiding the consumer financially in wiring his home? If so, what is it?) that about 80 of the 160 central stations replying have no system for aiding the consumer financially. The others all have some more or less elaborate method of taking care of the consumer, the most common practise being to do the wiring or have the wiring done for the consumer at cost, or cost plus a small profit, allowing the consumer to pay for the wiring by monthly installments, varying anywhere from two to three months up to twenty-four months.

With reference to Question 2 (Have you any technical program that contemplates a proper lay-out for wiring of houses, with special reference to placing of outlets, etc.? If so, what is it?), a negative reply was received from 125 central stations.

With reference to Question No. 3 (Does this program contemplate the enumeration of the various conveniences possible in house wiring? If so, give complete information on this point.), the number of negative replies received was 125.

With reference to Question No. 4 (Does your program provide for co-operation with contractors? If so, give details.), negative replies were received from 48 central stations. We quote typical replies as follows:

"We have a system of co-operation with the contractors which is proving very satisfactory: One contractor in particular, as a result of our efforts, has formed a school of his own men in which he teaches them solicitation methods. He gives them a bonus for each contract they turn in. We also offer a small prize each month for the one turning in the greatest number of contracts. This contractor always has a meeting one night each week for the benefit of instruction, when talks are made and papers presented by his men, also by members of our own commercial organization. This contractor's men are also invited to attend our own commercial meetings. In this way a considerable amount of enthusiasm is awakened among the men of both departments."

"We have found that co-operation with contractors results, in the majority of instances, in the company being held responsible for the contractor's shortcomings, both in work as well as in the payment of his material bills. We endeavor to encourage an arrangement with contractors throwing work to them instead of doing it ourselves, but our experience compels us to abandon the practice."

With reference to Question No. 5 (Does it further provide for a campaign of education with the architects?

If so, give details.), negative replies were received from 105 central stations. We quote typical replies as follows:

"We have endeavored to co-operate with the various architects, but have met with very little success. Usually, in laying-out wiring for residences, they almost invariably omit making provision for cooking, heating and other small appliances; also, their general arrangement for illumination is open to considerable improvement."

"We have three men engaged in the work of co-operating with the architects in laying-out lighting and wiring plans. One of these men devotes practically his whole time to the work, making regular routine calls on all architects. We found that the greatest error made by the architects in this city in laying-out lighting plans was that of failure to provide sufficient capacity in their wiring, to produce the illumination desired by the tenants."

"In the territory we cover, the education of architects would be a problem and difficult to accomplish any result. We have found our endeavors in that direction are not met gracefully or in a receptive mood."

"We make it a practice of having our representatives call on our architects regularly, and call their attention to improvements in lighting and appliances. We have obtained some very good results in following this plan."

"We have been unable to obtain very definite or good results from a campaign for educating architects. They have usually been educated by citizens who wish to remodel or build new homes, and who insist on having modern conveniences, such as baseboard and floor outlets, etc.; but, with this kind of education and printed matter and personal attention given them by central station representatives, architects are beginning to wake up to the fact that they have been very slow in recommending proper and most-improved wiring for electric service for their clients."

In reference to Question No. 6 (To what extent do present costs retard the wiring of houses?), 55 central stations disclaimed any knowledge along this line, 42 stated that wiring was not retarded at all by present costs, and the balance—63—felt that the cost did retard the wiring, particularly



M. C. Rypinski,
Detail & Sup. Dept. Westinghouse Elec. & Mfg. Co.,
New York City

of old houses, their ideas varying—as to amount—from 25 up to 100 per cent, the majority feeling that the situation was retarded about 50 per cent.

In reference to Question No. 7 (How much would the cost of wiring have to be reduced to appreciably stimulate the wiring of houses, having particular reference to new and old houses of moderate and low cost?), 59 disclaimed any knowledge of what reduction would be necessary, 40 stated that no reduction was necessary, and the balance, or 61, felt that a reduction was necessary, and their estimates varied anywhere from 25 to 50 per cent, the average being 37 1-2 per cent.

The general feeling was that the cost of wiring new houses did not need as much reduction as the cost of wiring old houses.

In reference to Question No. 8 (Do you know of any system of wiring not at present recognized in the National Electrical Code which would be safe and materially cheaper than the sys-

tems at present included in the National Electrical Code?), 130 replied in the negative, and we quote typical replies as follows:

"Have heard of superior system in use in the City of London, England. A form of twin-conductor wire and open cleat-work, and also the use of five-dollar meter. This matter of reduction of cost, both outside and inside residences, has appealed to us as a very serious matter. There seems to be a strong tendency to increase the expense of service connections, when we think, for the proper advancement of art, the change should be in the opposite direction."

"The English seem to have a system of concentric wiring with grounded outer case, which serves as one wire. This is very much cheaper, but, so far, have not heard of it being used in this country. This system, we believe, is approved by the Boards of Trade in the various cities of England. We understand the Board of Trade over there is the controlling power."

"Information has reached us through the medium of English papers of a system of wiring which permits the wire to be run along picture molds, etc., making the wiring of an eight-room house possible in one day. It must be assumed that the wiring must be perfectly safe, seeing that it is used in a country where both Fire Underwriters and the Board of Trade rules are very strict."

"It would be interesting to know whether the very stringent rules of the Fire Underwriters, which call for the installation of elaborate conduit wiring, has resulted in an appreciable reduction of the number of fires attributed to faulty wiring, whether the general use of such conduit wiring has resulted in an appreciable reduction in insurance rates, and whether or no it does not tend toward a reduction in the number of outlets installed."

With reference to Questions 2, 3 and 4, the Committee has been asked to assist in the publication of a Hand-book on Wiring, to be issued jointly by the National Electric Contractors'

Association, National Electric Lamp Association and the Commercial Section of the National Electric Light Association—the Committee representing the latter.

This Hand-book is to be placed in the hands of the central station solicitor, contractor and, where necessary, the consumer, with the idea of encouraging a greater use of electricity and creating a desire for improved and more adequate wiring equipment in residences. It will contain, among other things, characteristic plans of various classes of houses, illustrating proper wiring lay-out, including equipment varying from the most simple up to the most complete. In addition, it will take up in detail the various possible conveniences in wiring and equipment. It is hoped that this Hand-book may do a great deal toward educating the contractor and consumer to the application and use of better and more adequate wiring equipment.

In closing, your Committee feel that the time during which they have been active has been inadequate to give the Committee a comprehensive view of the general situation, and they therefore reserve any recommendations until such time as more adequate experience and data may warrant such an expression.

Report of Committee on Electric Vehicles

By J. T. Hutchings, Chairman.

The application of the electric vehicle in the work of electric lighting companies can be sub-divided into the following classes*:

- 1st.—General hauling of all kinds.
- 2d.—The hauling of heavy material, such as transformers, reels of cable, etc., in which the electric winch is indispensable.
- 3d.—The application of the electric vehicle in the construction of aerial lines, where electrically op-

*Many illustrations are shown from actual photographs typical of the adaptability of the electric vehicle for all conditions of service.

erated cranes are used for erecting and removing poles, transformers, etc.

4th.—The use of the electric vehicle in underground work for the drawing in and out of cable and pumping out of manholes.

5th.—The use of the electric tower wagon for trimming of arc lamps, etc.

6th.—The adaptability of the electric vehicle as an advertising medium.

In the loading and unloading of heavy transformers, reels of cable, and material of a like nature, work has been greatly facilitated by the use of the electric winch, which is usually placed under the seat of the vehicle, and which requires no additional storage batteries, the batteries for propelling the cars being used.

The electric vehicle in the construction of aerial lines unfortunately has not received consideration from an economical standpoint to the same extent as have other branches of the service. The use of a crane mounted on a truck, and operated by an electric winch, will be found indispensable. This is particularly advantageous in closely built up cities, and in narrow streets for the erection of iron lamp poles. It has also been found most useful in the pulling up of wire, as in many cases six No. 00 wires have been pulled up for a distance of one mile. The pull is a steady one, and the remarkable control of the vehicle greatly facilitates the work of the linemen. The work of the ordinary construction gang can be tripled.

Many companies have trucks equipped with electrically-driven pumps in addition to the winch, which are used for the pumping out of manholes. A portable electrically operated pump, which can be attached to any vehicle of one ton capacity or upward, can be economically used for this purpose.

The electric tower wagon occupies a field all its own. As a rule, such vehicles are used in emergencies only, and, if horse-drawn, it is necessary to

have an equipment of horses always on hand ready for immediate action. The application of the electric truck to this class of work entirely obviates this, as the electric tower wagon is always ready. This is particularly advantageous to companies operating trolley systems. Again, the electric tower wagon is most advantageous in the trimming of trees, the trimming of arc lamps, etc.

In connection with advertising, a number of up-to-date organizations are using electrically illuminated vehicles for the advertising of their wares after dark. This seems to be a field which has been untouched by the electric lighting companies, and one which should bring forth very profitable results.

Many companies have found that the lighting of lawns for lawn fetes, fairs, etc., can be accomplished cheaply by using the storage batteries of electric vehicles, which has proven most profitable and a splendid advertisement for the company.

Many companies are using small electric wagons for the delivery of lamps. These wagons are equipped with crates, etc., and are attractively designed, having in view primarily advertising.

The electric pleasure vehicle has become very popular in many of our cities, the number of vehicles sold last year being 4,513. All the manufacturers report a very healthy increase for the first three months of this year.

In the commercial field, however, the public is not familiar with the many advantages of the electric vehicle. Your Committee feels that every central station should use the electric vehicle to the exclusion of other conveyance, thus having first-hand knowledge of the many advantages, and should keep its records in such condition as to be able to show users of motor vehicles the actual costs of operation per day, per mile, and the number of days the vehicle was in actual use. At the present time it is very difficult to get much accurate data on this subject. This lamentable

state of affairs should be corrected. We cannot effectively push the use of the electric vehicle if we ourselves have no reliable information as to cost of operation.

The total cost of operating vehicles may be classified under three general heads:

- (1) General Expense—such as supervision, garage rent, wheel tax, and state license.
- (2) Operating Expense—Including the cost of oil and other supplies, general repairs, cost of electric energy, cost of repairs on tires and batteries, drivers' salaries, washing, oiling, and minor repairs, and garage expense.
- (3) Fixed Charges—interest, taxes, insurance and depreciation.

Under the heading of "General Expense," the conditions in various parts of the country are so different we give no definite figures.

From reliable data regarding "Operating Expense," which has been carefully compiled over a period of three years, we have the following data on one and one and a half ton wagons:

Average days in service per wagon per month	24 1-2
Average miles per day in service per wagon	29 1-2
Average kilowatt-hours per mile	.491
Operating Expense per mile:	
Oil and other supplies	.6 cents
General repairs	1.4 cents
Electric energy at 4c. pr kwh.	2. cents
Tires	1.62 cents
Batteries	1.7 cents

Making a total per mile of .7.32 cents

These are the items of expense common to all who are operating under average conditions. To find the total operating expense, however, the following figures must be added to the above items:

Salaries of Drivers,

Cost of Washing and Minor Repairs, Garage Expense.

These three items are variable, depending on local conditions, and so we give no figures for them.

The average merchant does not ordinarily figure in fixed charges, and our gasoline competitors are generally careful to omit any such items. In figuring total costs of operation, however, fixed charges must be taken into account. We recommend that fixed charges be made on the following basis:

Interest, taxes and insurance on the total cost of the vehicles; and depre-



J. T. Hutchings,
General Manager Rochester Railway & Light Co.,
Rochester, N. Y.

ciation on the total cost of the vehicles, less cost of tires and batteries.

From the foregoing, we believe it would be possible for all the central stations using electric vehicles to map out a system of operating records which would enable them to show prospective users the advantages of the electric truck, and these records should be available for the agents handling electric vehicles in your territory. Some central stations are selling and handling electric vehicles on their own account and operating garages. Where there is no active competition in the sale of electric vehicles, it would be well for central stations to take this matter up and show the possibilities, as has been done in the handling of motors and other special electric appliances, believing that when the central station has shown the possibility, there will be plenty of healthy

competition in the sale of electric vehicles.

Your Committee have also taken up the question of efficiency in tires on pleasure vehicles, and would report that there is a difference of from 30 to 70 per cent between the heavy gasoline type of tire as regularly sold and the best special electric tire on the market. This difference in tire efficiency means that, with the best tire as against the heavy gasoline tire, nearly double the mileage and double the life of the battery is obtained, if the vehicle is given proper attention otherwise. This question of tire efficiency will often account for increase in electric bills and complaints from consumers having pleasure vehicles.

The Committee have also taken up the question of rates, and feel that the central station should encourage this business as much as their policy will allow, having particular regard to the fact that the time when business needs the most encouragement is at its inception. We believe that a part of this difference in price could be judiciously charged to advertising.

The advantage given the electric vehicle by insurance companies is very considerable. The liability insurance companies are beginning to realize the difference between a gas car and an electric. The electric is under perfect control, and is so simple of operation that, in case of emergency, the operator does not become confused. Because of the lower speed, when collisions occur, the impact is less severe; the motor is under the car and out of harm's way; absence of inflammable fluid makes a fire practically impossible. The fire insurance companies recognize this latter feature and allow electric trucks on wharves, docks, in sheds and warehouses, where the gas truck is prohibited.

We have in the past been somewhat dissatisfied with the operation of storage batteries but, with the many improvements which have been made, your Committee feel that the question of the battery is not a serious one.

Your Committee wish to again em-

phasize the necessity of every central station using electric vehicles in its own work—*first*, on account of the saving and economy; *second*, as an encouragement to the manufacturers; *third*, as an encouragement to those in your community who could use electric vehicles with economy and satisfaction.

Report of Committee on Advertising and Publicity.

C. W. Lee, Chairman

During the past year substantial progress has been made in central station advertising though the tendency still seems to be toward a haphazard use of newspaper space and a lack of continuity in the follow-up campaigns.

Your Committee sent out to a large number of central stations a data sheet on advertising. For the purpose of comparison, your Committee has seen fit to classify the contents of the replies according to the population of the communities served.

Twenty central stations, serving cities with a population of from 20,000 to 50,000, reported an annual advertising expenditure of \$25,130. This would average about \$1,500 to a company. Of these twenty companies, seventeen are using the newspapers; eleven, special folders; nine, follow-up letters; six, bulletins; five, street cars; three, billboards, and eleven, electric signs. Nine companies report that they have been able to trace specific results from their advertising, and it is the opinion of eleven that newspapers form the best advertising medium.

Seventeen companies, operating in cities of from 50,000 to 100,000 population, report an annual advertising expenditure of \$41,726. This is an average of, approximately, \$2,500 per company. All of these companies are utilizing the newspapers; nine, send out special folders; seven circulate bulletins; five conduct street car advertising; five utilize the follow-up system, and two, billboard space. Twelve report that they consider newspaper advertising the best medium, while only five seem to be able to trace

specific results from their advertising.

Three replies were received from central stations operating in cities of from 100,000 to 200,000 population. Their annual advertising expenditure is \$18,900, making an average of \$6,300. All three companies use the newspapers, one exclusively. The other two report effective use of follow-up campaigns, special folders and billboards.

Fourteen replies were received from central stations operating in cities of over 200,000 population. The annual advertising expenditure as reported from these cities is given as \$443,292, an average expenditure of \$31,660. All of these central stations rely upon newspapers as the basis of their advertising, and naturally, they use all other forms of advertising in a definite manner and are thereby able to show results.

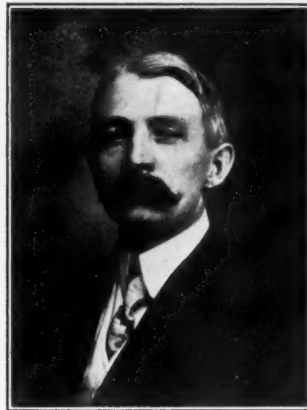
These replies would indicate that over \$2,000,000 is being expended annually for central station advertising.

It has been suggested to your Committee, by Mr. F. D. Beardslee, that the commercial section create an exchange for all classes of advertising copy. This matter has not yet been brought before the full Committee, but due consideration will be given to the suggestion.

During the past year a number of the well-known central station syndicates have developed a central advertising bureau, for the purpose of handling the advertising and publicity for their various properties. It has been demonstrated that, while this work can be done better from a central bureau, the best results are not obtained through syndicating copy for all of the properties, and that it is necessary for all copy to be carefully localized in order to produce results.*

From the progress which has been made, and the results which have been obtained from advertising by the wide-awake central stations, it has been clearly shown that the best possible

results cannot be obtained without a definite advertising plan of campaign. This, of course, should be outlined in conjunction with the commercial department. Newspaper advertising should be made the basis of any constructive plan, unless the central station is located in a territory suburban to a metropolitan center; in which case the advertising should be stimu-



C. W. Lee
New York City.

lated by direct-by-mail campaign along specialized lines. In this conjunction the monthly bulletin entitled *Electric Progress* and manufacturers' advertising can be used to advantage. If the advertising appropriation is sufficient, the work can be amplified by the use of billboards and street cars.

It is a highly significant fact that those syndicates and individual companies that report satisfactory results from their advertising are the ones that either maintain an efficient advertising department of their own or else employ the services of an experienced outside organization. It requires just as much, if not more, skill to market electricity as to market breakfast food or washing powder, and just as important that the advertising appropriation be used in the most effective manner. Whether this appropriation be large or small, it should be utilized to develop clearly outlined selling cam-

*The report here contains an account of the work of Mr. W. H. Hodge, of H. M. Byllesby & Co., Chicago. Mr. Hodge's contribution will be published in an early issue of *Selling Electricity*.

paigns, in which the several pieces of copy are run in their logical sequence, and which are conducted in complete harmony with the efforts of the new business department.

Marked progress has been made by the manufacturers during the past year in the preparation of distinctive advertising copy, designs and booklets prepared to meet the needs of central stations of all classes. Copies of this advertising matter are carried by the various salesmen, and the plan has been used in various forms by a number of companies. It is the endeavor of the manufacturers, in all cases where the central station is prepared to co-operate with them, to make each campaign as individual as possible. Their various publicity departments will write special letters, and localize the matter as much as possible for the individual central station. A great deal of this printed matter has been used successfully by some of the larger companies in conjunction with their regular advertising campaigns.

In answer to a query on results from national advertising, the publicity department of one of the large manufacturers says:

"The results from the national popular magazine advertising, which has been carried on by the company, have been very satisfactory. The advertisements have been aimed to reach all classes of power users, from domestic through the range to industrial power users. Great interest has been aroused and much business stimulated."

The past year has been marked by a pronounced growth of pro-publicity sentiment, not only on the part of central station managers themselves, but also among the controlling interests in large syndicates. Previously, it was believed that the less the public knew about the operation of utilities the better it was for all concerned. This theory, however, has been completely discredited by the results obtained by means of publicity. That the past year has been especially pro-

lific in these results is shown by the experiences of Maysville, Ky., Lincoln, Ill., Salina, Kan., Kewanee, Ill., Louisville, Ky., and Haverhill, Mass.

These are but a few of the recent cases where concrete results have been achieved by means of publicity. Indeed, almost invariably, when there is a direct issue, the public utility can secure a victory by placing its case fairly and squarely before the public—provided, of course, that it does so in time and that its case is a just one.

If there is one class of campaign in which, above all others, publicity has proved its worth, it is in combating municipal ownership agitation. Your Committee have not found a single instance in the period under review where publicity has failed to defeat the proposal, a record which is due in a large measure, no doubt, to the fact that the companies threatened with municipalization during the past year took aggressive steps to combat it before the agitation had gained any headway.

Standardizing Electrical Sales

By Douglass Burnett.

The work of the Commercial Department should be carried out according to a program or schedule, for the sake of orderly procedure and efficient work.

The central station business has developed beyond the spectacular field of new inventions and modern wonders. Our service is an article of trade. Our selling program must therefore be on a strictly business basis. The things we sell, both current and equipment, and the prices at which we sell, must be clearly outlined and described, for the purpose of instructing solicitors, explaining to prospective customers and to complaining customers.

No central station can efficiently conduct a campaign for the sale of its output until its rates are clearly set forth in publicly displayed pamphlets, obtainable at the Company's office,

without the necessity of verbal inquiry, and until the details of the equipment that is to be sold have been thoroughly worked out and a complete price-list adopted.

The schedule of rates so printed must take into account all of the conditions of use ordinarily met with in dealing with the public. The varying load conditions of residence, hotel, office, store and factory must be met, as well as the contingency that some customers will, even for considerable periods, use no current at all, and that other customers may use even millions of kilowatt hours a month. Such complete schedules might be listed as follows:

Schedule A—Transient Lighting and Power Rates.

Schedule B—Yearly Lighting and Power Rates.

Schedule C—Rates for Auxiliary Service for Private Plants.

Schedule D—Rates for Non-Peak Service.

Schedule E—Flat Rates for Sign and Display Lighting.

Schedule F—Industrial Power Rates from the Low-Tension System.

Schedule G—Industrial Power Rates from Transmission Lines at High Voltage.

Schedule H—Industrial Power Rates for Customers Supplied Directly from Generating Stations.

The forms containing the rates should stipulate the Company's general terms and conditions, and the rules against discrimination in charging for service.

Next, our printed schedules must include provisions for extensions of the main lines where needed, and for service connections; and prices should be on an easily understood basis. For the cost of excess service above that done at the Company's expense, quote a unit price per pole, cross-arm, per wire foot of primary lines and of secondary.

A modern central station must give advice to customers on standard-practice methods of installing lighting and motor equipments in a substantial and efficient manner, and provide the easiest means by which customers may secure standard equipments on reason-

able terms of purchase—by co-operative agreements with contractors and manufacturing agents, or by sale of equipment from the Company's storeroom and installation by the Company's installation department. All orders for equipment must take due note of construction, operating and maintenance features. The price



Douglass Burnett

Mgr. El. Com. Dept. Consol. Gas, Elec. Lt. & Pr. Co.,
Baltimore, Md.

charged the customer must include a percentage for general expense, to cover cost of handling the order, supervision and inspection, and interest in connection with orders with time payments, and, if desired, the cost of solicitation. The Company must settle upon such percentage to be used generally in the selling program.

Only by a comprehensive plan of this sort can a central station feel that it is giving due attention to the development of its own business, and to the reasonable requirements of its customers, and the industry as a whole.

The selling work of the Company represented by the author is carried out by a force organized in the following branches:

Commercial Lighting—handled by District Solicitors.

Electric Sign and Display Work—handled by District Solicitors.

Residence Lighting Wiring—handled by a Corps of Residence Solicitors.

Appliance Sales—handled by Appliance Salesmen and Demonstrators.
 Power Engineering—handled by an Industrial Engineer and Assistants.
 Illuminating Engineering—handled by an Illuminating Engineer.
 Complaints—handled by its Department.
 Office Sales and Inquiries—handled by an Office Force.
 Electric Power Wagon Department—operated from the Company's Electric Garage.
 Electric Lamp Room.

The feature of Commercial Lighting has been recently the so-called Tungstolier campaign.*

For house-lighting wiring, orders for complete wiring are taken according to methods of construction fully outlined to the residence solicitors and explained to the customer. This wiring proposition is applied only to completed houses. The terms are twelve months' time, with six per cent discount for cash, same as for store wiring. A heater circuit for one 600-watt outlet is furnished free. The Company's price-list includes, at extra prices, the necessary wiring for fan circuit, exposed metal moulding, burglar or emergency circuit, outlets under hardwood floors and for each additional heater-circuit outlet.

The price-list also includes quotations for cases where the simpler sets of fixtures are not acceptable.

For sign work, the Company sells a line of stock signs at prices stipulated in a sign hand-book, and at a fixed cost for delivery and installation, and at a fixed cost per foot for wiring.

A flat-rate sign schedule covering service from dusk to 11 p. m., to 12 p. m. and to 2 a. m. includes current, and patrol service. The sign maintenance provides for inspection, cleaning and painting of the sign, at regular intervals, at a fixed price per socket per month.

The work of standardizing the selling campaign must include co-operative programs with manufacturers. It has been found important to make a schedule showing the items which must be taken into account in such co-operative agreements, and the fol-

lowing points may be of interest to those who consider taking this step:

The organization of the manufacturer's selling force where the campaign is not carried on by the Company.

The agreement as to the number of men who should be employed at the work.

The scope of their work.

The definition of their responsibility as between the manufacturer and the central station.

The extent of control by the central station of the force of manufacturer's representatives while selling.

Salesroom displays of the thing sold.

Method of conducting the work of installation.

The amount, scope, quality and method of distribution of advertising matter.

The determination of a list of prospects for the thing sold.

The maintenance of a live-prospect list.

The stipulation of the retail price of the thing sold.

The stipulation of the discount to the Company.

The maker's guarantee.

The terms of payment by customers.

The selection as between order on the Company and on the manufacturer for the thing sold.

On the subject of discount to the Company, it is often well to stipulate the retail prices and the Company's discount, rather than the selling prices from the manufacturer to the Company.

On the subject advertising, attention is called to the possibility of systematizing the distribution of circular matter. A program of things to be sold should be made up in advance, using the month as the basis, assuming that during the month of June, for instance, a particular kind of electric iron is to be sold. Outside representatives should specialize on the sale of that device during the month; it should be prominently displayed at all of the Company's offices; it should be advertised through the regular mediums, and circulars or dodgers should be placed in all outgoing covers. The circulars should also appear prominently on the counters of the business office.

A recent development in the Company's selling program in line with

*This campaign was described at length in the May, 1911, issue of *Selling Electricity*.

that of some others is the electric garage.

Also an Illuminating Engineering Department is necessary in establishing lighting campaigns, determining upon the details of equipment, methods of installation and the fixing of lighting standards. Standard practise sheets showing lighting recommendations are prepared in this department for the guidance of the district solicitors. Advice to customers is freely given in writing and by blue print, and it is often well to distribute copies of such recommendations to architects, contractors and salesmen for their information and comment.

In the power work, similarly, the engineers advise customers as to the best arrangement of motors, complete equipments being frequently specified in detail. It is well to provide, in connection with the power work, that motors may be sold at standard resale prices, on time payments where necessary, the installments being placed at such an amount as to include interest on the investment, the contract stipulating further that the cash discount shall be given for any cash payment. A stock of new or second-hand motors (or both) should be maintained.

All of the various prices and instructions on the selling campaign are combined in a solicitor's hand-book. Each solicitor's hand-book contains a map of his district, cut from the blue print map of Company's mains. These maps are furnished to wiring contractors regularly.

Report of Committee on Functions of a Sales Department

By T. I. Jones, Chairman.

The purpose of this committee is to present a report treating with matters of organization and policy rather than with actual methods of business getting, the primary object being to

standardize practice so far as may be consistent with local conditions.

Organization.

It is realized at the outset that the size of a company is a potent factor in the form of organization to be recommended. In this report, this matter will be considered in its relation to the larger companies, located in cities of 100,000 or more inhabitants. This does not mean that an adequate system of organization, record and conduct for a sales force is not just as essential to the success of a small company as to a large one, but the subject is too comprehensive to take up every phase in one paper.

It seems to be the general opinion among the general sales agents of the larger companies that the work of getting light and power business should be done by special salesmen, and that particular classes of work be done by separate bureaus of the sales department, in co-operation with the salesmen in the field. It seems further advisable to district every city and to place one salesman in charge of a district.

The particular bureaus into which the organization of a sales department seems to require specialization, are advertising, new installation or wiring, appliance sales, and power engineering. However large or small the company, the work of the sales department may be divided among these bureaus, and as the work is great or small in volume, may be consolidated, in accordance with local needs.

The advertising bureau should be run directly in line with the needs of the territory as suggested by the local salesmen in the field, and constant co-operation between the advertising manager and the local salesmen should be made a subject of careful study, supervision and direction.

It seems almost a necessity in developing the use of electricity in the large cities, where so many unwired properties exist, that some partial payment plan for wiring be put in force, and in

the larger companies it is felt that this work can be best followed up by making a separate bureau of it.

One of the greatest aids in popularizing the use of current is the generous advertising and use of electric appliances. It seems best to exploit the value and use of appliances through a separate bureau devoted to this work. It seems to be the opinion of the majority of sales agents representing the large companies, that appliances should be sold under the jurisdiction of the lighting company. It seems further inadvisable to sell apparatus below a fair profit. Selling apparatus at cost merely for the use of the current consumed, invites opposition and objection from the contractor, department store and electric supply houses, while experience has demonstrated that as large a volume of business can be done at the higher price. In short, there



Theodore I. Jones,
Gen. Sales Agent Edison Electrical Illuminating Co.,
Brooklyn, N. Y.

seems to be no reason why an appliance bureau should not turn in a profit over the expense of its operation.

The power engineering bureau is a part of the sales organization as a rule only in the larger companies. Smaller companies may and do include this force within their regular engineering department, but in the larger companies the power engineer is essential in connection with the power salesmen. Such a bureau should have in its files a complete record of every independent plant in the territory covered.

Sales Department Reports.

The immediate reason for discussing here the matter of sales department reports is in order that the companies may adopt so far as possible a standard form of reporting results obtained and so enable their sales departments to benefit by comparison of the work done in other fields. The principal general reports which should be of value for purposes of comparison may be classified under four headings:

- (a) A salesman's detail report.
- (b) A report of each separate bureau.
- (c) An analysis of connections and disconnections.
- (d) Monthly report from the General Sales Agent to the General Manager.

It is of interest to note as having a bearing on both (c) and (d) reports, that present practice appears to differ; for example, if Smith sells out to Brown, and simply a change of name is involved, this transaction is included by some companies as new business, although no increase in the connected load may result. In other companies the selling of an iron or other electrical appliance is included as business written. The nature of the business written should be specifically classified under appropriate headings. This would give a more accurate record of actual conditions and results and would facilitate authentic comparisons.

Credit as it Affects the Getting and Retaining of Business.

It is being more and more recognized that a low percentage of bad debts or uncollectable accounts indicates an active collecting force, and has or should have little relation to the deposit question. It seems to be the general opinion among the commercial men that the loss of money which might follow the taking of much business without deposit, would be less than that entailed in the loss of business resulting from the attempted

exaction of too frequent or excessive deposits.

In reply to the question: "What percentage of accounts do you carry without deposits?" seven companies stated over 95 per cent of their accounts were carried without deposit; four, 95 per cent; six, 80 to 90 per cent; seven, 70 to 80 per cent; two, 60 to 70 per cent, the average of answers being that about 75 per cent of the total accounts were carried without deposit. A liberal policy on the part of the credit man should be exercised in connection with an equally active scrutiny of accounts by the collection department, with the cut-off weapon always at hand.

With regard to the matter of credit on installment wiring and apparatus, it seems to be the general opinion among the larger companies, that in store work the first payment should be at least 25 per cent of the total cost of the wiring; and as to residences where the work is done for the owner, the transaction is almost without risk, as the property is sufficient guarantee for the payment. Where prospective power customers are in doubt as to the economy and practicability of electric drive, but are willing to install it on the partial payment plan, the installment of motors in limited quantities is a desirable feature, the company retaining ownership in the motors delivered until full payment is obtained.

Compensation of Salesmen.

A number of the lighting companies have tried paying the salesmen on commission and have found this system unsatisfactory, mainly because they have not hit upon a plan of paying commissions, which is at once equitable and simple.

Straight salaried salesmen are generally made to feel satisfied and give their best service; if not, they are dropped.

The salary and commission method is operating satisfactorily in several cities. The system employed by the Commonwealth Edison Company has

been operating for several years, with very satisfactory results: representatives of the sales departments take more interest, as they have something directly at stake, and work longer hours. No commissions are paid until the customer is connected. The commission scheme does not include payment of commission on work on very large deals, the maximum limit of earnable commissions being \$500 annually.

Another suggestion under this heading is to pay the salesmen a straight salary with commission on special campaigns such as house-wiring contracts, and the sale of electric current consuming devices.

The straight commission is not known to be in general use, but where it is in effect, covers special campaigns, such as installing wiring for residences and stores, electric signs or other temporary activities, when special canvassers may be employed and allowed a small drawing account, which is charged against the commission earned by their direct sales. This system has been employed by numerous companies with considerable success.

In view of the difference of opinion of your committee covering this question of compensation, we withhold any recommendations.

Conclusion.

The above general subjects will, it is hoped, be the means of starting commercial men in the various companies to think along similar lines—to adapt their reports and practices to a more or less general standard.

Report of the Committee on Competitive Illuminants

H. J. Gille, Chairman.

"The only type of gas lamps that can be considered competitors of the present day high-efficiency electric lamps are those in which the light is emitted from incandescent mantles. We understand that, approximately, 55,000,000 mantles are manufactured

annually in this country, as compared with, approximately, 100,000,000 incandescent lamps."

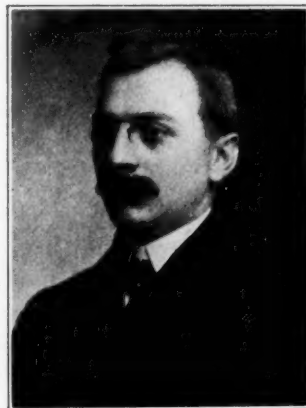
With this introduction, Mr. Gille proceeds at once to show the disadvantages of gas and gasoline for lighting purposes.

The paper is a very able presentment of the case against flame burners, and is supported by an array of references from authoritative sources which leaves little doubt as to the practical advantages of electricity. If criticism of the paper were made, it would be that the case is too strong in favor of electric lighting. Many of the citations, while amply supported, will prove distasteful to companies operating combination gas-electric properties, but in cases where keen and none too scrupulous competition exists the paper will be hailed as an excellent piece of campaign literature. It is quite impracticable to offer an abstract of this paper, owing to its length, and the large number of references and foot-notes necessary to a complete understanding of the test. The following paragraphs on comparative costs are, however, available:

"Aside from the many other advantages of electric light, it is evident that, at the usual rates for electricity and gas, the total cost of operation with Mazda and tungsten lamps, which is also true of Nernst, Cooper-Hewitt and Moore light, is in reality less than for inverted gas lamps and is not more

than two-thirds the cost with upright units.

"In the table below is shown the annual cost of operating gas lamps for a period of 1,000 hours of burning, under the various systems of maintenance. In the last column is given the operating cost of equivalent Tung-



H. J. Gille,
Commercial Agent Minneapolis General Electric Co.,
Minneapolis, Minn.

sten-Holophane units, where electricity costs 10c per kwh. In the case of Tungsten lamps, allowance has been made for the interest on investment, depreciation on permanent parts, lamp renewals and a monthly charge for cleaning reflectors."

The paper covers gasoline competition very thoroughly. A description of the five classifications of gaso-

COMPARISON OF ANNUAL OPERATING COSTS GAS AND MAZDA UNITS.

Gas Unit	Total Annual Operating Cost, 1,000 Hrs. Operation, Gas at \$1.00 per 100 cu. ft.			Mazda-Holophane Capacity for equal or greater illumination. Electricity at 10c. per K. W. Hr.	
	Rental Basis	Maintenance, Contract Basis	Mainten- ance by Consumer	Unit (Watts)	Annual Operating Cost
Reflex—Holophane.....	\$	\$ 7.96	\$ 7.70	1—60	\$ 7.91
Reflex—Diffusing Globe.....	.....	7.96	7.70	½x100	6.19
4-Mantle Inverted Arc.....	29.62	28.93	26.28	3—60	23.72
5-Mantle Inverted Arc.....	33.37	32.83	30.68	1—250	29.78
Welsbach Jr.....	.....	.....	5.50	25	3.91
Standard Welsbach.....	.....	.....	9.36	½x100	6.19
2-Mantle Upright Arc.....	25.62	24.27	21.17	1—100	12.38
4-Mantle Upright Arc.....	36.62	35.29	33.99	3—60	23.72
Open Flame.....	.....	.....	6.00	½x40	2.77

line plants is given and their hazardous character explained. Particular reference is made to the complex insurance restrictions and to court decisions in which these restrictions were upheld. Taking up the question of comparative costs the paper says:

"The cost of operating any lighting system may be divided into three parts: Annual fixed charges (which include interest and depreciation), the cost of maintenance, and the expenditure for fuel or energy.

"The cost of a Class A gasoline system for an installation of usual size is between \$150 and \$300. The life may be from five to six years, but frequently the systems are abandoned after one or two years' use. An annual interest and depreciation charge of at least 25 per cent of the original investment must therefore be made against this system. Class C installations cost from \$7.50 to \$15.00 per lamp. The life of these systems is usually less than that of Class A and the yearly fixed charge should be fully 30 per cent. Where a consumer is considering the purchase of a gasoline outfit, it can sometimes be shown that the cost of operating a Mazda or tungsten installation for an hour each night would not be greater than the sum of money which must be written off annually to cover interest and depreciation on a gasoline plant.

"The maintenance cost of any gasoline installation will depend very largely upon the care given the lamps and equipment. If lamps are kept in good condition, the maintenance cost, excluding labor, will vary from \$0.75 to \$2.00 per lamp per year of 1,000 hours. This sum is at least equal to the cost of Mazda or tungsten lamp renewals in an equivalent electrical installation.

"The third item of expense, and, in fact, the only one which is considered by the manufacturers, is the cost of gasoline. The usual claim is that, with single-mantle units, 40 to 50 lamp hours can be obtained per gallon. The result obtained in an investigation of 200 gasoline lighting installations the best performance obtained was 25

and the poorest 14 lamp hours per gallon. Mr. Peterson of the Menominee and Marinette Light and Traction Company, reports that the average monthly cost of gasoline in 422 units of 74 plants inspected was \$0.647. Assuming an average of 1,000 hours' operation per year, at a rate of 18 cents per gallon for gasoline, this becomes equivalent to 23 lamp hours per gallon.

"With electrical energy at 10 cents per kwh., a 100-watt tungsten or Mazda lamp can be operated at an expenditure for current of 1 cent per hour. Even when a 150-watt Mazda or tungsten lamp is used to replace a gasoline unit, the cost of current, in the average case, less than twice that of the gasoline consumed. If we add to the energy cost the maintenance expense and fixed charges for the two systems, we find that, in terms of money actually expended, the operating cost for Mazda or tungsten lighting will not be materially greater than that for a gasoline installation; the saving in favor of the gasoline will never be such as to compensate for the many disadvantages and inconveniences incident to the use of such a system.

"The attention and labor required to operate a gasoline installation satisfactorily and the delay in obtaining light are by no means as insignificant as represented by the manufacturers of these appliances. It is stated that the generation for some lamps of Class C requires but 45 seconds. In practice, the filling and pumping-up of the tank, the generation and lighting of each lamp, and the adjustment of the burner for the various pressures and quality of gasoline, will require many minutes rather than seconds. With a common generator, each lamp must be adjusted whenever another lamp is lighted. If a true money value were placed on the cost of attendance, gasoline would seldom be in a position to compete with electricity.

"Another consideration having an important bearing upon the relative cost of electric and gasoline lighting

is the cost of redecorating, which is practically doubled when gasoline lamps are used."

Report of the Committee on Progress

By T. Commerford Martin, Secy.

Mr. Martin's excellent report of the industry's progress, embracing 98 pages, is too voluminous to be abstracted except in the most sketchy manner. The report opens with review of general conditions, proving the substantial growth of the business and its present very solid footing. Especially is shown the logic and practical economy of consolidations and a plea is entered against hurried condemnation of corporate action which most truly leads to both conservation and the most complete service to the public.

Foreign conditions in Germany, Austria, Belgium, Switzerland and Japan are reviewed in some eight pages.

"Regulations, Rates and Franchises" is the title of a 9-page section of the report. Mr. Martin treats

these subjects dispassionately, as he does that of all controversial subjects.

"Some Recent Central Station Methods and Conditions" covers a variety of items of especial interest to commercial men. Conditions in small communities and the service possibilities of small residences are discussed at some length. A fairly complete abstract of the Cleveland method of soliciting house-wiring under a set schedule is printed, this scheme being the foundation of a number of similar plans which have proven effective in various classes of central station solicitation. A very interesting item, also, is the proposal advanced by Mr. R. A. MacGregor of Connorsville, Ind., for educating the public away from municipal ownership at a time when there is no agitation. This suggestion is accompanied by some very graphic incidents, showing the inefficiency of municipal operation—something which the public knows vaguely but can only be made to see when concrete examples are used.

Mr. Martin's report is deserving of close study by those who desire a broad perspective of the industry.



DOLLAR IDEAS

Free Lighting for Sample Houses

A. G. RAKESTRAW



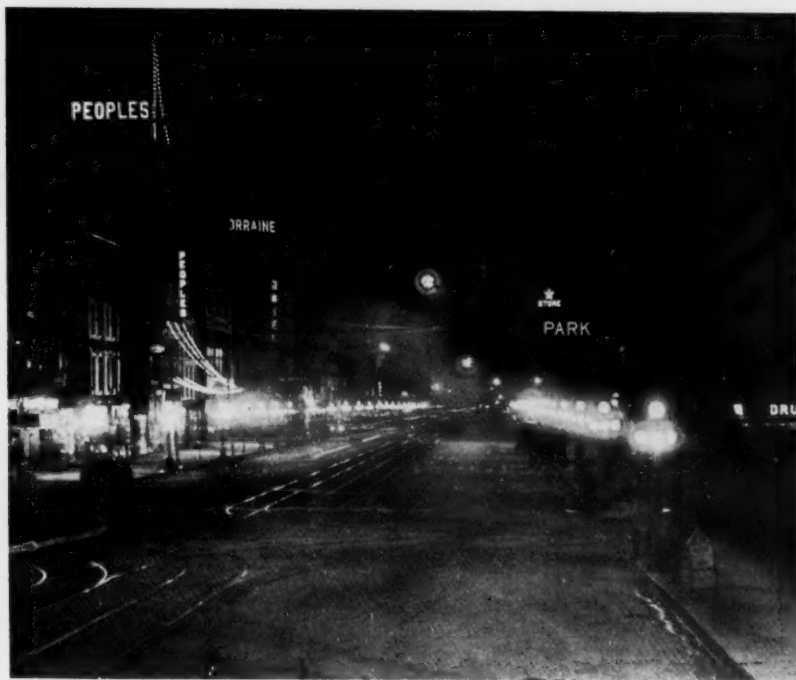
Contract Agent, Harrisburg Light, Heat & Power Co., Harrisburg, Pa.

There are a number of building contractors in Harrisburg who each year erect a considerable number of houses on speculation, selling them and renting them. These houses are all wired for electric service and we furnish the contractor with light for one sample house without charge, so that prospective purchasers may be shown through at night. The fact that the service is installed and instantly available makes a good impression, and the accommodation to the contractor leads to much favorable comment. It insures a strong recommendation for the central station to the new people taking the houses.



ELECTRICAL PROGRESS

Decorative Street Lighting

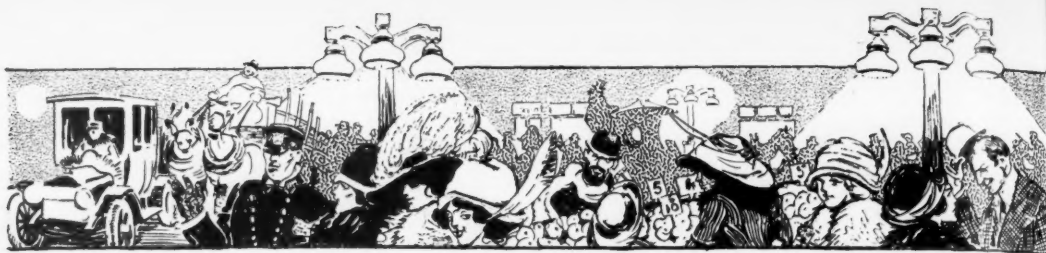


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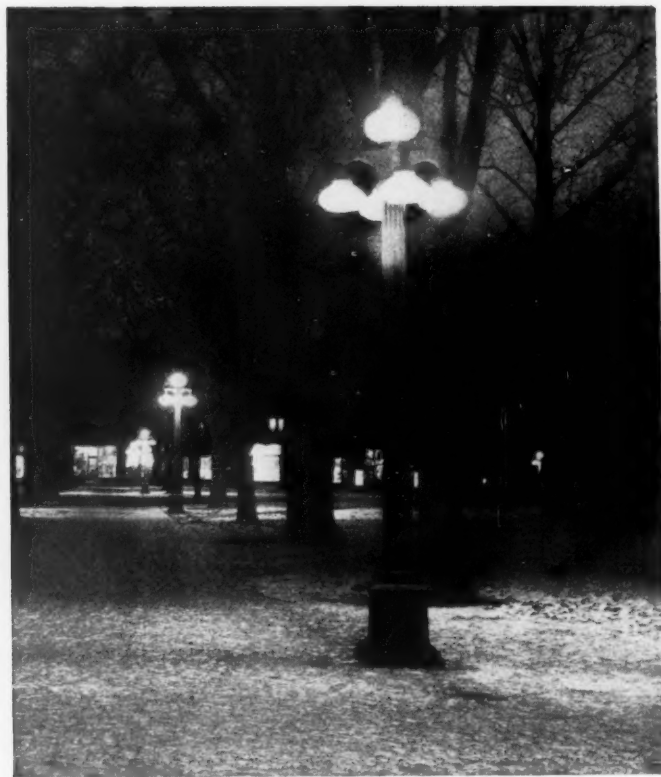


JUNE SUPPLEMENT TO "SELLING ELECTRICITY"

Copyright, 1911, by THE RAE COMPANY



light the streets—not the sky



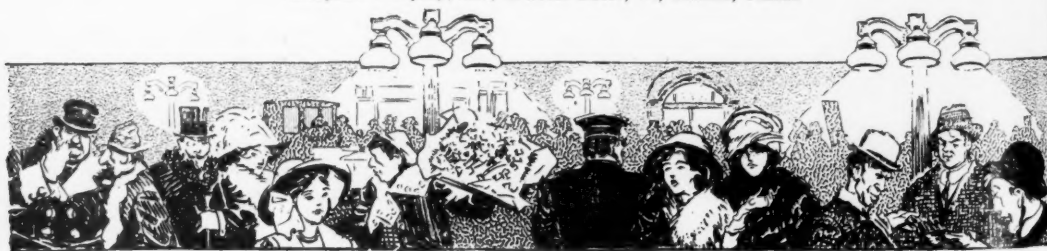
Installation of Holophane Street Lighting Units in the Public Square, Newark, O.

HOLOPHANE Street Lighting Reflectors are scientifically designed to direct illumination *downward* on the streets and sidewalks, instead of letting it shine *upward* to light the sky.

They are more attractive than the ordinary balls used in decorative street lighting; at the same time they *save* light, and give better effect with less expense for electric current. Therefore Holophane Units are both *more economical* and *more attractive* than any other equipment.

Do not plan your "Great White Way" until you have investigated Holophane.

Holophane Company Sales Department Newark, Ohio
 New York Boston Philadelphia Chicago San Francisco London, Eng.
 Holophane Company, Ltd., 62 Front Street, W., Toronto, Canada



Electrical Progress

A SMALL MAGAZINE PREACHING THE POPULAR
APPLICATION OF ELECTRICITY

Decorative Street Lighting Issue

The Growth of the "Great White Way" Idea

*A List of Cities where Ornamental Street Lighting is Proving
Popular and Profitable*

They say that the first regular street lights ever installed were erected in London in 1736. They were oil lanterns on posts and it was hoped that they would prove a safeguard and a protection against the holdup gentry of the times. Before this, the rich man had relied on his servants and their "lanthorns." The honest poor man staid at home.

In this country Ben Franklin is credited with being the father of street lighting, having installed a meagre equipment in Philadelphia in 1759.

Here also crime prevention was the objective and oil the illuminant.

Gas lights are supposed to have been first used for street service in London in 1808, but oil lamps were the more common equipment for many years thereafter, and the protection and guidance of the wayfarer continued to be the only aim.

But when electricity commenced to shine its way into practical existence, people began to want more than a simple succession of bright spots to mark the course of the highroad and



Salina Street, Syracuse, N.Y., is a Regular "White Way," the Special Street Illumination being Enhanced by Well-lighted Display Windows and by the Large Number of Signs. The Streaks in the Middle of the Streets are Automobile Head-lights.

the "Great White Way" idea took root. Though it has grown far and fast, the economic, trade-stimulating factor of the right kind of street light is just beginning to be fully appreciated.

The development has been gradual until the last few years. The old fish-tail gas light gave way to the more powerful electric arc, but the change at first brought only bigger bright spots and wider dark spaces. But with the coming of the electric sign, the city shopping centres took on the nightly air of festivity and Broadway, New York, was dubbed the "Great White Way." Other cities followed and gradually busy streets everywhere began to brighten, for it was seen that light would do more than aid the police—that it would actually increase the merchants' opportunities by attracting the evening crowds from other streets, and bring people out of their homes simply by the bright cheerfulness of the illumination.

The idea has swept the country. Smaller cities north, south, east and west have asked themselves "Why don't we have a Great White Way?" and merchants are banding together to install special display street light-

ing purely to promote better business. Arc lights, arches and festoons of incandescent, and ornamental iron lamp-posts bearing from one to five incandescent lamps enclosed in globes and reflectors are the three most popular methods of "White Way" lighting. With the coming of the high efficiency tungsten and Mazda lamps, however, the posts along the curb are meeting with ever-increasing favor, and are supplanting the other two systems.

"Is the 'Great White Way' idea sound logic?" you ask. "Is it practical business promotion?" The following lists of cities where this display street lighting has been installed in the last few years is proof sufficient, and in the majority of cases, this is the result of concerted action by the merchants themselves who have organized and with the co-operation of the city and the electric light company financed the movement as a means of promoting better business.

High power arcs and flaming arcs have been installed as special display lighting in:

Flame Arcs.

Baltimore, Md.	Detroit, Mich.
Boston, Mass.	Louisville, Ky.
Buffalo, N. Y.	Newark, N. J.
Cleveland, Ohio.	Philadelphia, Pa.



Special Illumination in the County Court House Square of Toledo. The Lights in This Installation are Magnitite Arches. Toledo has Special Streets Containing Very Fine Special Illumination of This Nature.

Pittsburg, Pa.
St. Louis, Mo.
San Francisco, Cal.

Syracuse, N. Y.
Toledo, Ohio.
Washington, D. C.

In these cities arches and festoons of incandescent lamps spanning the street or lining the curb have proven the popular choice:

Arches.

Appleton, Wis.
Birmingham, Ala.
Butte, Mont.
Canton, Ohio.
Charleston, S. C.
Charlotte, N. C.
Columbia, S. C.
Columbus, Ohio.
Fond du Lac, Wis.
Grand Rapids, Mich.

Green Bay, Wis.
Hobart, Okla.
Lancaster, Pa.
Macon, Ga.
Mobile, Ala.
San Francisco, Cal.
South Bend, Ind.
Wilkes-Barre, Pa.
Wilmington, N. C.

Grinnell, Ia.
Hamilton, Ont.
Hannibal, Mo.
Hoopeston, Ill.
Houston, Tex.
Indianapolis, Ind.
Jacksonville, Fla.
Joliet, Ill.
Kokomo, Ind.
Lansing, Mich.
Lincoln, Neb.
Los Angeles, Cal.
Macon, Ga.
Milwaukee, Wis.
Minneapolis, Minn.
Mishawuk, Ind.
Mobile, Ala.
Montgomery, Ala.
Mt. Clemens, Mich.

Phoenix, Ariz.
Portland, Ore.
Racine, Wis.
Richmond, Va.
Rockford, Ill.
Salt Lake City, Utah.
San Antonio, Tex.
Sandusky, Ohio.
San Diego, Cal.
San Francisco, Cal.
Savannah, Ga.
Schenectady, N. Y.
Seattle, Wash.
Seneca Falls, N. Y.
Shawnee, Okla.
Sioux Falls, Ia.
South Bend, Ind.
Spencer, Ia.
Spokane, Wash.



Broughton Street, Savannah—Here is an Excellent Example of Special Post Lighting. This Picture was Taken on a Wet Night Which Accounts for the Large Amount of Reflection on the Side-walk.

The following list of cities where ornamental lamp-posts have been installed along the curb, though incomplete, shows conclusively that this method is proving immensely popular and profitable.

Posts.

Aberdeen, S. D.
Albert Lea, Minn.
Atlanta, Ga.
Aurora, Ill.
Beloit, Wis.
Billings, Mont.
Buffalo, N. Y.
Champaign, Ill.
Chicago, Ill.
Cheyenne, Wyo.
Columbus, Ohio.
Davenport, Ia.
Dayton, Ohio.
Decatur, Ill.

Des Moines, Ia.
Duluth, Minn.
East Pittsburgh, Pa.
Evansville, Ind.
Faribault, Minn.
Fort Atkinson, Wis.
Fort Dodge, Kan.
Fort Wayne, Ind.
Fort William, Ont.
Gary, Ind.
Grand Forks, N. D.
Grand Rapids, Mich.
Grass Point, Mich.
Great Falls, Mont.

Nashville, Tenn.
Nashwauk, Minn.
Newark, Ohio.
New York City
Oakland, Cal.
Oklahoma City, Okla.
Omaha, Neb.
Oskaloosa, Ia.
Ottawa, Ont.
Ottumwa, Ia.
Pasadena, Cal.
Peru, Ill.

Springfield, Ill.
Superior, Wis.
Syracuse, N. Y.
Tacoma, Wash.
Terra Haute, Ind.
Urbana, Ill.
Vancouver, B. C.
Victoria, B. C.
Virginis, Minn.
Warren, Ohio.
Washington, D. C.
Wausau, Wis.
Winterset, Ia.

Any proposition that has proven popular and profitable in so many cities must be "good business." And when it is seen that these cities range in size from metropolitan Chicago to little outlying towns in the far west, the opportunity is one which is obviously open to all.

The Influence of Street Lighting on Property Value

*The Story of Three Installations in St. Louis,
Brooklyn and South Bend.*

Anything that tends to increase the traffic on a business street and brings people out on the sidewalks in the evenings, naturally means better business for its merchants, with a resultant influence on property values. The discovery that such an influence can be organized and maintained by the merchants themselves has opened up great possibilities for the development of retail business. It is no longer necessary for the merchant off the main thoroughfare to be content with a secondary opportunity and bide his time till the population increases or his chance comes to move. The new system of ornamental street lighting has provided a means of developing his business from his own door and of making his own street more popular, by simply installing a practical work-a-day loadstone which will focus the public eye and draw the crowds.

Light has ever proved itself the master magnet for humans no less than for insects. We choose the bright and cheerful street, and where we walk we spend our money.

In St. Louis, the merchants along one block on Easton Avenue, a small

outlying shopping centre, felt that they were losing too much of the neighborhood business to the big stores down-town. They met to consider ways and means to impress on the public that their local market offered opportunities and convenience worthy of support. They investigated the experience of various towns where decorative street lighting has been installed and decided to try its effect in their case. The local lighting company assisted them in carrying through the project and lamp-posts were placed at intervals of 25 feet along both curbs.

It was not long before the good influence was apparent. The evening business of the merchants increased, vacant stores were rented and at higher figures, while many merchants made various improvements in their premises to keep pace with prosperity. Before long an offer of \$1000 a front foot was made for a lot on the corner of Easton and Taylor Avenues, the highest price on record in the section, and real estate men credit the boom to the improved illumination.

Again in South Bend, Indiana, the main stores were located at the junction where the interurban street car lines came in. The merchants a few blocks up, feeling that they were not getting their share, decided to



Ornamental Standards in Minneapolis. This was One of the First Installations of Decorative Lighting, and is Today One of the Largest.

start a new centre of trade and to advertise it by installing nine arches of electric lights from curb to curb throughout their section. A large electric sign reading "New Centre" was erected across the street which was plainly readable from the "old centre" and from the street cars. Each arch bore 40 lamps.

The effect was immediate. People walked down to the "New Centre" to do their shopping because that seemed to be the place where things were happening. Before long, rents in the new section soared 60 per cent and more, and the merchants who had

How One Man Went About It

The Story of the Preliminaries of one Installation.

In one little city in Ohio, the leading merchant became much interested in the results of an installation of ornamental street lighting which had been successfully developed in a neighboring town. He went to the secretary of the Board of Trade, who had fathered the enterprise and said, "How did you do it? I want to light up the main street in my town and would like to profit by your experience."

"Well," said the secretary, "the most important things are the facts,



Ten Generative Arc Lamps Affixed Directly to the Building Makes This One of the Brightest Corners in Pittsburg. This is an Example of Private Enterprise. The Merchant Having Erected the Lamps Himself for Advertising Purposes.

no leases gave way to more progressive firms. One house in particular, that already owned the largest electric sign in South Bend, moved bodily from the old centre to the new. Of course, the merchants backed the out-door lighting up with plenty of window lights and energetic sales endeavor. But it was the lights that turned the trick.

Truly, the evening hours are but a small part of the merchant's day, but they are crucial hours no less, for when we walk abroad when the work is done, we are relaxed and open to impression. Then is the time for the merchant to sow his seed. And the street we find most pleasant in the evening is apt to be the street we will traverse by day.

figures and photographs covering the experience of other cities in different parts of the country. You will find that there is a wealth of data available if you will go after it, which will practically insure you against any mistake and make the results all you could desire. Communicate with the Board of Trade and Merchants' Associations in the cities where the various types of equipment are in use and they will gladly send you full data covering their costs and what part the city and the lighting company has played.

"Then take the matter up with your own electric light company and they will gladly co-operate and secure similar information from other cities. Finally, lay the proposition before your



Race Street, Cincinnati, is an Example of Scientific Illumination applied to Street Lighting. It will be Noticed that the Light on the Roadway and Side-walk is Much Greater and that Comparatively Little Light is Wasted by Being Thrown Against the Buildings.

municipal authorities and ask them to write to the mayors of these same cities and ask their opinion of the benefits.

"When you have this data in usable shape and have studied it so that you are prepared to answer questions, arrange an open meeting and invite all the merchants and business men of your community to attend. Do more than that. Enlist the active support of the local press, get the editors to work with you and call on the real estate men to boost. See that there are plenty of press notices and personal invitations. Call up fifty of the leading men on the 'phone yourself the morning before the meeting and make them promise *you* to be there.

"In the meantime, invite two or three manufacturers of lamp-posts and lamps, etc. to be present and talk. These men will bring lantern slides and give you the benefit of their fund of experience without placing you under any obligation other than a fair consideration of their proposition in case the street lighting is adopted. Their talks will be practical lectures on civic improvement, eminently interesting and profitable to you. This, with the data you have compiled first hand, will put your merchants in enthusiastic accord with the enterprise, and a few of the men present should be

asked to pledge a small sum to defray the cost of preliminary details of organization, securing bids, etc. Of course, if you have a permanent Merchant Association, the matter may be handled by that body more easily, but the public meeting is essential.

"It remains only to determine on the details of the equipment and the cost of current and maintenance, and you are in a position to figure just what the expense will be per front foot of property affected. The electric light company and the city will undoubtedly be willing to co-operate, since they share in the benefit. Bear in mind, however, that the success of the whole enterprise depends on the effectiveness of the illumination itself.

"Above all, work for enthusiasm at the start. There is no business interest in the city that will not be the gainer. Make the newspapers, the real estate men, the lighting company, the telephone company and the street railway company lead the movement. Everything that helps the street helps the town, and everything that helps the town helps every business interest in it. It won't take more than that one meeting to make the installation a surety, and the result will more than meet your expectations."

And the merchant went home and followed his advice.

What is Behind This Ornamental Street Lighting Movement?

A Few Facts in Regard to Recent Installations in American Cities.

Because a man's heart seldom strays out of call of his pocket-book, we are prone to peer behind every public improvement and try to discover what "interests" are fostering it.

A unique feature of the ornamental street lighting movement is that in the majority of cases it has

Fort Dodge, Iowa, the Commercial Club assessed the property at so much per front foot, divided between the owner and the tenant, to cover the cost of the installation. The city assumed the cost of current and maintenance. In Rockford, Ill., the Chamber of Commerce fathered the movement, the property owner paid for the installation and the tenant for current and maintenance on the front footage basis. In Savannah, Ga., an organization of merchants was in charge and



An Excellent Example of White Way Illumination in a Small City. Springfield, Ill., finds this Fourth Street Installation Practical and Profitable.

been the associated merchants and *not* the electric light company that has fathered and controlled it. The electric lighting industry has shown a ready willingness to co-operate and in most cases the city government has done its share, but it is the merchants themselves to whom we must give the credit of having seen the opportunity and made it a practical success.

Many methods have been employed in financing these installations. In

assessed the entire cost of installation and upkeep on the property to be benefited. In San Antonio, Texas, the merchants installed a system of arches of incandescent lamps over the street, and pay for the current while the lighting company takes care of the maintenance. In East St. Louis, the Downtown Club raised money by subscription and installed arches, the lighting company donating the current for a short time and the club paying after.

These cases are simply taken at

Quality Equipment

For Decorative Street Lighting



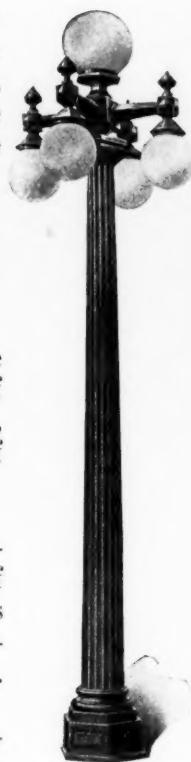
WE were the first to specialize in equipment for decorative street lighting and our great success is due to the fact that we furnish only equipment of the highest quality.

Jandus Luxolabra

are used in more "Great White Ways" than any other type of decorative post, simply because, while maintaining our standard of quality, we give the best values.

Our experts will gladly co-operate with municipalities, Boards of Trade, or Merchants Associations in laying out economical and efficient street lighting installations.

Our catalog will give you many valuable suggestions.



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Chicago

Atlanta

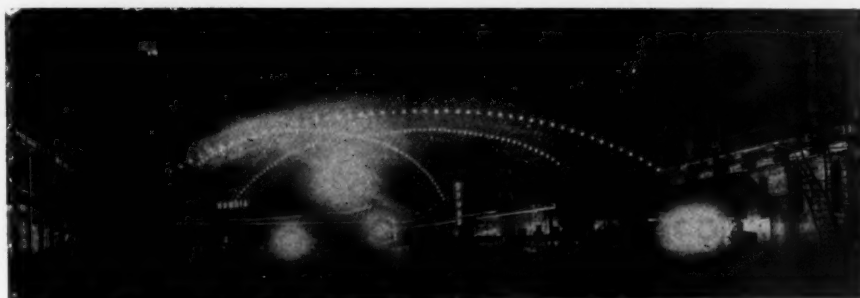
random as indicating how the merchants have made this their own affair. In Aberdeen, S. C., it was the Commercial Club, and ornamental curb posts were installed. In Los Angeles, Calif., merchants and property owners have combined in various sections and adopted an ornamental post. In Davenport, Iowa, the Merchants' Association installed 16 posts to the block, with parade, band, concert and speeches on the opening night. In Appleton, Wis., they installed arches, the installation being paid for by subscription and the Merchants' Association supplying the current.

Of course, there are other instances, as in Montgomery, Ala., where the

a number of mayors their opinions. We anticipated rather cautious replies, for as a rule such officials are reticent in commending improvements that have not absolutely proven their use and value. That the movement toward brighter streets is among the most desirable of civic betterments, the following letters show:

Mayor Edward E. Burkart, of Dayton, Ohio, in writing of the experiences of that city, says:

"We installed three hundred and sixty-nine ornamental standards and the result has been a practical transformation of our business section. They help business by attracting people to the business section.



An Example of Arch Lighting in Birmingham, Ala. The Merchants are glad to pay for this Extra Illumination Because it Means Money and Increased Trade to Them.

lighting company worked up the first interest and in Oakland, Calif., where an electrical contractor took the initiative, but in each case, the merchants along the street to be lighted have been the important factor and reap the major benefit. It is this fact that proves the soundness and practical economy of ornamental street lighting. It is a newly discovered means of improving local business conditions by attracting larger crowds of possible purchasers to the neighborhood, and as such is a sound measure of business promotion for the merchant and business man who depends on the local market for his prosperity.

Street Lights and Civic Pride

When we became interested in getting a broad view of the decorative street lighting proposition, we asked

"My own opinion is that in spite of the beautiful bridges, boulevards and other improvements that we have made here in recent years, the ornamental street lighting is the best, most beautiful and most profitable improvement that the city has made in twenty years."

Mayor Edward Schoeneck, of Syracuse, speaks even more enthusiastically:

"The transformation resulting from the installation and use of our 5-light ornamental electric posts is so pronounced," he says, "and the contrast with other streets not thus equipped is so great that there is bound to be an extension of this class of lighting service in the business centre of Syracuse. The attractiveness of a street thus lighted is reflective of the enterprise of the merchants whose business places line it and a standing advertise-

ment of their progressiveness. The strikingly illuminated thoroughfare attracts the crowds, and the crowds bring business. Civic spirit is also reflected in the effort for pleasing yet refined effect. This system of lighting business streets is indicative of 'something doing.'"

Mayor F. R. Crumpton, of Superior, Wisconsin, has no hesitation in commending the plan:

"I do not know of anything that has been done in our city the past few years that has added more to the beauty and general benefit to the city than our ornamental street lighting. It has helped the appearance of our streets greatly and has been a great benefit to the business interests where they are located and also increased the value of the real estate many times more than the cost of installation. We are working on plans to extend the system to other streets as fast as possible and hope that in the near future the lights will be on many more of our streets."

Mayor Samuel L. Shank, of Indianapolis, Ind., is equally positive:

"Ornamental street lighting has proved to be a success in this city. Not only is the new system ornamental but the results obtained from a lighting point of view are most satisfactory. This new idea of illumination gives our city a distinctive appearance and causes much favorable comment from visitors."

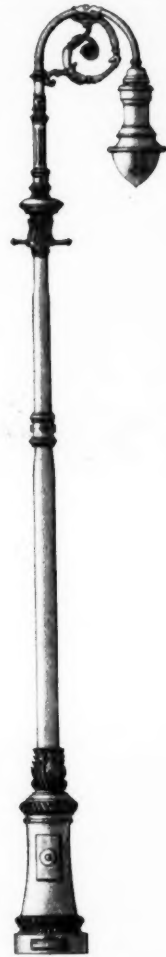
John MacVicar, Superintendent of Streets and Public Improvement, of Des Moines, Iowa, says:

"Des Moines is thoroughly pleased with the ornamental street lighting. Its effect upon the streets where it is installed has been to exhilarate business to such an extent that business houses on other streets have at the expense of the merchants and property owners, had the lighting area extended. Beyond question, the addition to our lighting system in the business section of the city has been of great benefit to the merchants, property owners and to the city in general."

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Power—because of their lasting, perm-
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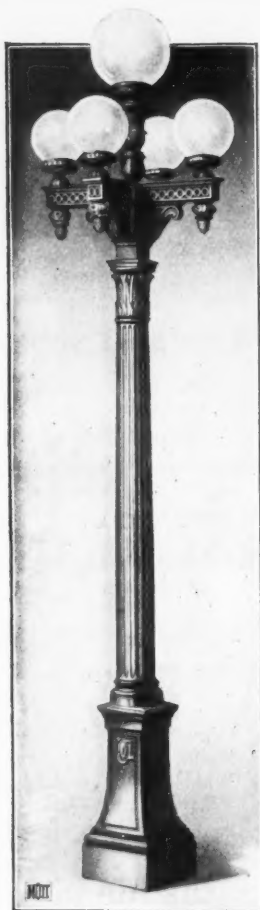
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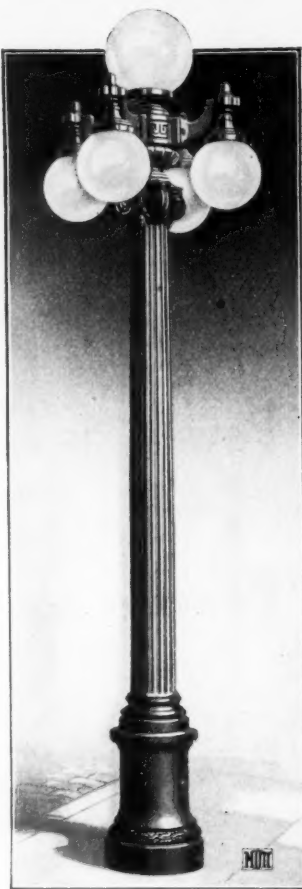
The Corinthian Standard was built for you—that is why it is the best in the world

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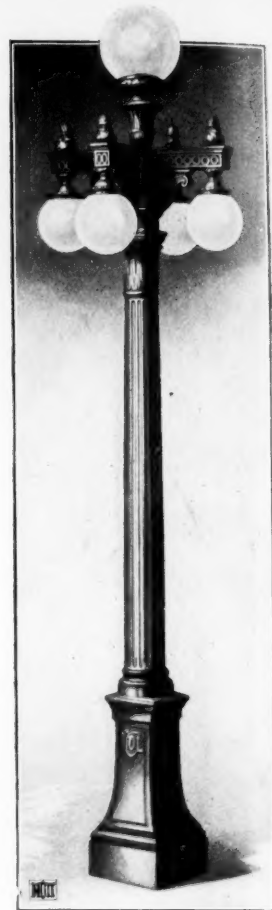
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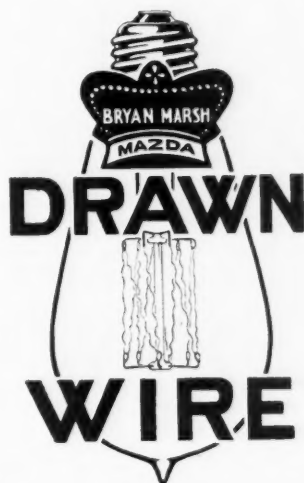
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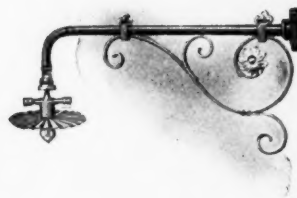
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Report of Committee on Industrial Light

By M. S. Sloan

If the central stations are to canvass actively for the lighting of industrial plants, the prospects of success will be greatly enhanced if the solicitors are supplied with practical data to cover all conditions and are in a position to make proper and definite recommendations.

The problems are usually such that they cannot be easily solved by solicitors who rarely have the time, data or the individual knowledge to make an exhaustive study of the subject. It, therefore, should be the duty of this



M. S. Sloan,
Assistant to President Birmingham Ry. Lt. & Pr. Co.
Birmingham, Ala.

Committee to make a careful engineering study of the situation, standardize the methods as far as possible, and put specific data into the hands of the managers of new-business departments, in order that solicitors may keep up with the advance in this line of work. Such data will not only result in the making of correct recommendations, but will in itself mark a step towards the standardization of illumination in industrial plants.

Owing to the more or less chaotic condition of the whole lighting problem, due largely to the rapid development of lamps and accessories, the Committee decided that a few first-

class installations, clearly described, would be of far greater value at this time than either a "progress report" or a report which at best could be but an attempt at standardization of methods. Having decided upon this course, your Committee, in order that some of the present approved methods and the results of their application might be more clearly understood, have had reports submitted outlining several forms of industrial plant lighting in this country.

We would strongly recommend that the Committee be continued on this work, with the idea of studying and classifying the various methods of lighting, and, while it may not be possible to fully standardize equipment which will meet all requirements, it will be possible to secure data and information to present in a condensed form that will be helpful to central station managers, or new business departments, in securing business in this important field, valuable alike to the consumer and the lighting interests.

Following this introduction, the report contains very excellent descriptions and data covering installations as follows:

L. Adler & Bros., clothing factory, Rochester, N. Y., *by W. D' A. Ryan.*

General Electric Company, induction motor manufactory, Schenectady, N. Y., *by W. D' A. Ryan.*

Westinghouse Electric and Manufacturing Company, general works at East Pittsburgh, Pa., *by C. E. Clewell.*

There are also included in the report:

Analysis of Industrial Lighting Requirements, *by W. D' A. Ryan.*

Reflector Maintenance, *by H. J. Tait.*

Industrial Plant Lighting with Incandescent Lamps, *by J. S. Codman.*

Report of Committee on Power

By E. W. Lloyd, Chairman.

Your Committee on Power decided that a compilation of data of all kinds pertaining to power would be of great value and member companies were asked to contribute data. The letter stated that the duties of the Committee were:

1st. To compile reliable data giving the horse-power required to drive different types of machines in different industries.

2d. Load-factors, or average daily hours' use of maximum power-demands in different industries.

3d. Average kilowatt-hours of energy consumed with relation to the horse-power installation in different industries.

4th. Relation of the actual maximum demand on the central station lines to the horse-power installed in different industries.

5th. Kilowatt-hours required per unit of output of a given industry.

6th. Fluctuation of monthly consumption of energy by different classes of industries.

7th. Time of peak-load of different classes of industries.

Your Committee had printed forms to be used in the collection of data, and, out of, approximately, 900 companies to whom letters were sent, replies were received from 190.

The blank asked for power data as follows:

Name of Central Station Company.
Kind of Fuel.
Cost per Ton.
Salary of Firemen.
Salary of Engineers.
Class of Business.
Type of Motor—AC. or DC.
Total Horse-power installed in Motors.
Voltage, Phase, Individual or Group Drive.
Number of Motors.
Running Hours of the Factory per Week.
Kilowatt-hours per Annum.
Actual Maximum Kilowatts Demand.

We received about 1000 detailed reports from 190 companies*. If a form such as was sent out, were standardized in loose leaf, and all of the member companies sent to a central bureau information relative to the more prominent classes of industry being served by them, this information could be referred to very readily and transmitted to those asking for help.

It is quite astonishing to see the large customers served by relatively

small companies, indicating the progressiveness of these companies in securing larger power business. From the replies received, it would seem that almost every class of industry is being served in some community by a central station. Having this fact before us, who can believe that it is impossible for us to get all classes of business? An examination of the details of this report will show lines of industries being served, where a few years ago it was thought impossible on account of the fact that they had plenty of refuse for fuel, or their steam requirements were so large that central station service would be prohibitive in cost.

We believe we are entering a new era in securing power business; that the hard work done in the last few years by commercial departments has had its effect, and that the growth of the power business from now on should be at a very much more rapid rate of increase than heretofore. A little more co-operation between the companies will be a big factor in making this growth more rapid.

Right here we believe it is not out of place to say a word relative to the requirements of power-men in commercial departments. It is safe to say that the absorbing of all of the information available by any one man would be impossible, but the fact remains that the men in the field who secure the more important contracts are men who are the best equipped.

It is not necessary to add anything in this report relative to the qualifications that go to make a salesman, but it is becoming more evident each day that, in order for power companies to sell energy to the larger users, they must have men able to handle the work intelligently. Fundamentally, a power man must have technical knowledge, obtained either through schools and universities or through contact with work from which he will secure the information needed in selling central station power.

Many of the more prominent sales-

*It is impossible in this abstract to reproduce the very valuable tables issued in connection with this report.

men in the business today are without university educations, but, in securing new men for education in this field, the tendency is to get younger men from technical schools, whose training has advanced them several years toward being good power men. A close analysis of all the conditions entering into the cost of making power in private plants can be secured only by men who know how to collect such information. Occasionally we hear of companies looking for men having the above qualifications, offering compensation that prohibits the securing of the proper men for the work.

If a central bureau could be established for the collection of this information, your Committee do not see any objection to having on file the price received per unit for the energy, as this, of course, is a most important factor in connection with securing large business.

Local conditions may have something to do with load-factors of different industries, but your Committee do not believe there is any great difference on this account. For instance, the information coming in has shown that the average running hours per week of different classes of industries running with a single shift of men is from fifty-four to sixty hours per week. This difference, as you will note, is about 10 per cent in hours of running, and the difference in the load-factors could, therefore, not vary more than this.

It has been said that conditions in different communities are so widely different that it is hard to use information from other cities, but we do not believe this to be the case, with the possible exception of the steam-heating requirements in Northern cities as against Southern cities. These statements do not refer to the cost of labor and fuel, but merely to the electricity consumption in different classes of industries.

Of course, we appreciate that coal and labor conditions vary in different cities, and these factors must be given consideration in each case. In the

further compilation of data it might be well to show the labor cost in power plants in different cities as well as the fuel costs.

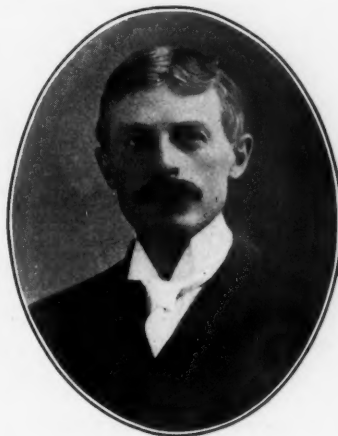
Your Committee wish to extend thanks to the member companies and manufacturers co-operating in the collection of data for this report. Thanks is due them for their generous support and the furnishing of information that they have spent time and money in collecting.

Report of Committee on Residence Business

By Clare N. Stannard, Chairman

Introduction

There is no question but what residence business is desirable, the point to be decided being, "How desirable?"—that is, how far the advertising or educational value warrants the extension of lines beyond the point where



Clare N. Stannard,
Secretary Denver Gas & Electric Co., Denver, Col.

they carry their own fixed charges and yield a reasonable profit. As the desirability depends so greatly on the cost of the distribution system required to supply a residence territory, further information on this point is greatly to be desired.

Canvassing is the basis of successful residence business getting. All successful canvass systems are founded

on the use of a proper system card, which is filed under street index and divided into two main classes; covering residences which are on existing mains, and those which will require extensions. Where the system is properly kept up, periodical calls are made on all prospects, both on the lines and off.

In general, the use of women as residence canvassers has not proved satisfactory. Many, however, favor it, providing the right type of woman can be found. Evening canvassing has not as a general thing proved even worth while. This should not be taken to include evening calls to close a contract or secure a signature, or by special appointment at the request of a customer.

Residence customers are usually divided into three classes: those owning their houses are not required to pay a deposit; those renting or leasing houses, if they can establish a satisfactory reference, no deposit; apartment-house customers, a deposit unless they furnish satisfactory credit reference.

The usual deposit required is \$5.00. The asking of deposits has been found to be a bar to a certain percentage of new business; but it is very questionable whether the business so lost would be worth having. Where prepayment meters are used no deposit is asked.

As regards minimum bills, the general consensus of opinion is that a minimum bill is not a bar to residence business.

The percentage of bad accounts in residences and apartment houses averages about 1-4 of 1 per cent.

Installment Wiring

Great difference of opinion exists as to the advisability of the companies rendering any financial assistance to the prospective customer in equipping his house. The practice followed varies from that of free wiring with a nominal charge for fixtures to no assistance whatsoever.

As to the advisability of the com-

panies going into the fixture and wiring business themselves, the greater weight of opinion inclines towards the protection of the contractor by employing him as the agent of the company, the company assuming the financial responsibility.

Much diversity of opinion also exists as to where the lines should be drawn dividing the company's property from the customer's. Some install service at their own expense; a large number of companies, however, make a charge for the service from the line to the house, and some make a charge for setting the meter as well. The majority of the larger companies, operating so as to give good service and show a good earning capacity, have no difficulty in convincing the customer of the justness of a service charge.

Taking into consideration the fallibility of human nature, a straight salary with a proper follow-up system on the agent's work is the most general method of payment used. If a commission basis or a combined salary and commission basis is considered advisable, the commission should be in the form of a bonus based on the increase in the business over that of the previous year. This is an inducement for the agent to better the business permanently, and the demoralizing system of paying a premium on individual sales is avoided.

The control of the lamp used by the customer is of benefit to the company, but, considering the cost as well as the saving in current of the new high-efficiency lamps, it does not seem advisable to give these to the customer on any other basis than the net cost plus an allowance for breakage and handling, less the allowance per kilowatt-hour which is figured to cover the carbon free renewal. This gives a customer a high-efficiency lamp at considerably less than they can be bought by any contractor, and, consequently, should keep control of the lamp situation.

As regards the effect of the tungsten lamp on the revenue from residence customers, there seems to be great

doubt as to whether it has had as yet any effect whatever on the residence business.

The general trend shows that prepayment meters have not as yet been developed to a state of mechanical perfection which would warrant their widespread installation. Where the customer requires a prepayment meter because his bills run less than \$1.00 per month, it is questionable whether the company can afford to carry the business. Apartments would seem to be a legitimate field for the prepayment meter, providing they can be so located as to be reasonably secure against theft. For other installations bringing in more than the minimum amount per month, the percentage of saving by the use of the prepayment meters seems doubtful, leaving only the question of bad accounts to be considered.

Where the revenue for the first year promises to equal 70 per cent of the cost of an extension, opinion seems pretty generally established that the extension should be run free of cost to the consumer. Where the estimated revenue is less than this amount, a policy of prepayment of a part of the cost by the customer would seem to cover most requirements. Certain extensions, where there are special reasons for getting into the territory before development, it may be advisable to make the extension without regard to revenue, but the majority favor the advance payment of a certain portion of the cost by the prospective consumer as a guarantee of good faith on his part. Where future possibilities of increased business are taken into account in planning service extensions, the question of discrimination can always be raised before a Public Service Commission by the refusal on the part of a company to extend service without prepayment. Some definite rule is therefore advisable for the protection of the company.

The encouragement of the use of electrical appliances is always a very successful and profitable means of advertising. Sending out appliances for

a specified period of trial, to be returned at the company's expense if not purchased, has proven very satisfactory as a means of increasing revenue with existing customers. The placing of appliances in new houses which are on the line, before they have been sold by the builder, has resulted in many cases in an order for electric service being given before even the final papers of purchase were passed.

The results obtained in securing residence business as reported are most encouraging. The various reports show increases of from 20 to 40 per cent in the number of residence customers over the previous year.

In the question of revenue secured, we find the greatest discrepancies in the reports sent in. These vary from \$18 to \$40 per residence per year, a fair average being \$25 per customer.

Per kilowatt connected, the figures given vary from \$18 to \$22 per kilowatt connected, the average being \$21 per annum.

New Hotel to Have 1800 Phones

The new McAlpin Hotel, New York, will have more telephones than many good sized towns—as many as the town of Peekskill. The contract just signed covers 100 trunk lines, 1800 stations and 500,000 local messages.

Coming Chicago Convention, A. I. E. E.

The forthcoming annual convention of the American Institute of Electrical Engineers, will meet in the new Hotel Sherman, Chicago, on June 26th to 30th, inclusive.

While the list of papers to be presented at the convention is not complete, a diversity of subjects will be considered.

A committee of fourteen local members of the Institute has been appointed to make arrangements for the convention, Mr. Louis A. Ferguson, being chairman of this committee. The program will include visits to points of interest and various social events, and it is confidently expected that the 1911 convention of the Institute will be the most successful in its history.



Signs That Sell Goods



Good advertising demands character and distinctive style in Electric Signs. Federal Designs impress the public with the name and characteristics of the goods to be sold.

Having attracted the attention, they carry their message forcefully to the public eye.

Federal signs drive home. They are more than pyrotechnic displays—they bring direct business.

Federal construction is of the highest type, all metal throughout. Federal signs do not collapse or burn up.

A Federal Sign is a permanent investment in business getting publicity.

This night view of the Berberich sign, taken from an unretouched photograph, shows one of the Federal Signs erected in Washington, D. C.

Other Federal display signs are shown in our thirty-two page Display Sign bulletin, No. 233. A postal card brings it.

Federal Sign System (Electric)

General Office: 501 Home Insurance Building, Chicago

In writing to advertisers, mention "Selling Electricity"

SELLING ELECTRICITY

JUNE, 1911

THE COMMERCIAL CONVENTION

Those men in the N. E. L. A., who have talked most about commercial work—who fought for the first “commercial program” and who have headed the movement which led to the formation of the Commercial Section—are very much in case with the “super” in “The Bonnie Briar Bush” who was put on to hold up a piece of rickety scenery, and in doing so attracted greater interest than the “star.” In both cases, the best that was hoped for was a little indulgent applause: in both cases the result is what Broadway characterizes as “a hit.”

This year's National Convention was practically a commercial convention, and in a larger sense than the so-called commercial men really appreciated. It brought out with startling distinctness a fact which all have felt but for which few were prepared: that commercialism is something more than salesmanship; that it is, in two words, nothing less than *general management*.

That fact is rather sobering. It is one thing for a bright young new-business manager to discourse on the sale of flat-irons and discuss systems for handling solicitors: it is quite

another thing to formulate far-sighted policies and review the entire industry with clear vision and a broad perspective. A good many good men found themselves “out of their depth” in the Commercial Sessions of this Convention.

The lesson to be learned is this: the responsibility of the commercial men is today the greatest of any group in the industry. We have been a bit cock-sure, a bit aggressive. We have been narrow exactly as the technical men before us were narrow, believing in the pre-eminence of our personal work, and lacking in proper perspective. Now we learn that we have rushed hurriedly, if not blindly, into work for which we are only half prepared. It is a considerable jolt, but it will do us good.

The Commercial Section reports show the realization of these shortcomings. Almost all of the reports recommend a continuation of work along broad lines to the end that the commercial departments may be as well equipped with exact data as the engineering departments. This is necessary, immediately. Certain of the largest companies can gather a sufficiency of such data alone, but the big companies are not the industry: the smaller organizations, and the men as individuals are the ones to be considered. Their needs are paramount.

It is a bit disconcerting to be sent back to secure primary schooling when we thought ourselves ready to take the degree of Master of Commercialism; but, after all, the lesson is learned.

Let us get to work again.



This is a sample of

“IRIS”

the most beautiful glass made in America. The exquisite decoration is **in** the glass, not **on** it. The designs are all informal; they lack the cold symmetry which marks the ordinary machine-decorated product. The color-harmony characteristic of “IRIS” is as effective when the shades are cold as when they are aglow with light, while the shimmering iridescence gives a richness not found in any other American product.

A Campaign for BETTER New Business

- “IRIS,” the most artistic glass made in America, offers to Central Stations an opportunity to secure BETTER new business.
- Heretofore, the aim has been to cheapen electric service for residence customers.
- But **we know** from experience that there is a larger and richer field if the Central Station will make its lighting more attractive, more beautiful, more “fashionable.”
- We have a very simple but **effective** plan for developing residential electric lighting—especially for securing the wiring of old houses.
- It’s a plan **you** should acquaint yourself with. Address

FOSTORIA
GLASS SPECIALTY
COMPANY
FOSTORIA, OHIO

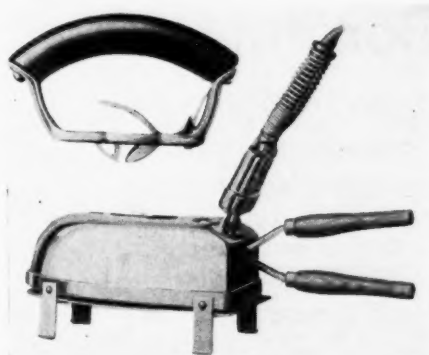


The Manufacturers



Electric Iron For Travelers

The central station man may consider that a traveler's iron is hardly in his province, but anything that will aid in popularizing electricity should be supported, even though the immediate profit is next to nothing.



For the traveler must have a home somewhere and if he or she is accustomed to the convenience of electric service "on the road" it means a permanent customer for somebody.

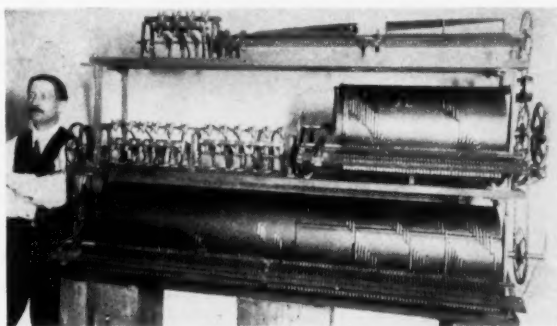
The Westinghouse electric traveler's iron is here shown. The handle can be removed so that a minimum of packing space is necessary. A feature of the Westinghouse traveler's iron is that no breakable material enters into its construction. All insulation is of sheet mica and the connecting plug is composed wholly of metal and sheet mica. A hole is provided in the end of the iron, as shown in cut, in which a curling iron can be heated. A durable stand, formed from sheet metal, is furnished with each outfit.

Electrical Bread Baking

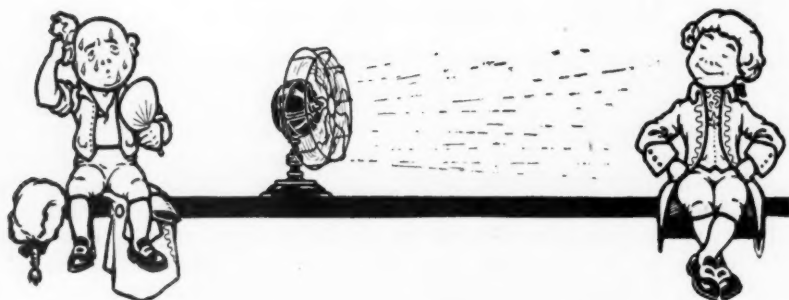
Every Sunday the General Electric Company, at Pittsfield, Mass., makes a free distribution of several hundred loaves of bread to the Orphans' Home, Day Nursery, Hospitals and other charities. This donation, highly appreciated by the recipients, is the product of the new electrical ovens now being specially developed by the Company for the bread baking industry.

A Famous Flasher

The illustration herewith shows what is said to be the largest single flasher ever built. It is now in use on an immense electric fireworks sign, located at Michigan Ave. and Randolph streets, Chicago, and produces the effect of an immense bursting sky-rocket besides controlling a large type display. The machine contains 72 one-ampere circuits, 175 three-ampere circuits, one 60-ampere circuit and two 200-ampere circuits. It is known as a "triple-decker," being, as the pic-



ture shows, three sections high, each section 12 by 72 inches on the base, and occupying altogether a flasher space 80 by 20 inches and 5 feet high. Its weight is 1200 pounds. It is known as a Dull's combination flasher and was built for a Chicago sign concern.



Summer Comfort

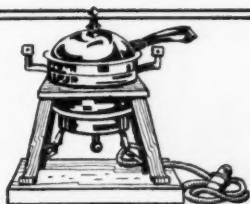
In Manhattan this means much more than the breeze from an electric fan—though that helps. It means, more than all, freedom from worry in the office, factory and home. ☞ And the Edison Service, for any form of electrical energy can help you there. The turn of a switch means light, heat or power for any use in any quantity—
Be comfortable. Use Edison Service which is always “at your service.”



The New York Edison Company
Fifty-five Duane Street New York

Bronx Office

362 East 149th Street



Lobster a la Newburg

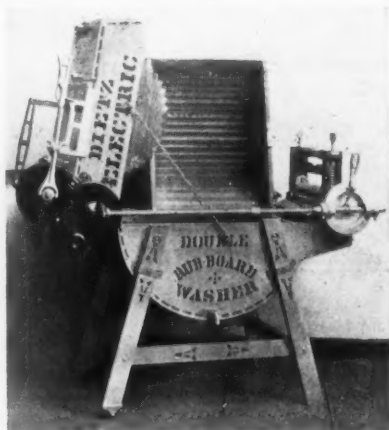
2 cups of boiled lobster cut in large dice
 $\frac{1}{2}$ cup of sherry 1 pint of cream
1 glass of Sauterne Yolks of 2 eggs
1 tablespoonful of butter

Have the water boiling in the lower part of the electric chafing dish. Put the lobster with the butter in the blazer, turn the current on to full heat, and stir gently until the butter is all melted and the lobster thoroughly heated. Mix the sherry with the cream and the yolks of the eggs; pour over the lobster in the chafing dish and allow the ingredients to come to the boiling point. Pour the glass of Sauterne over the whole and serve very hot. Season with salt and paprika.

Cost of current 2 cents
for preparing this dish



A page from the booklet "Recipes for Cooking by Electricity." Copies of this booklet can be obtained by writing to the Heating and Cooking Bureau of The New York Edison Company, 124 West 42d Street.



Don't Coax—Compel

If you want a washing machine that *makes* the dirt come out investigate the

Double Rubboard Dietz Washer

Contains two curved flexibly connected wash boards oscillating in opposition and holding the clothes in the suds between with just the right pressure to draw the dirt and leave the linen.

All We Ask is Your *Opinion* of
Our Central Station Sales Plan

The John Dietz Mfg. Co.

Cincinnati, Ohio

Sales Agents: Vacuna Sales Co., 30 Church Street, New York



THE NEW YORK PUBLIC LIBRARY Uses 2,000 OPALUX REFLECTORS

For Sale by Your Dealer
OR

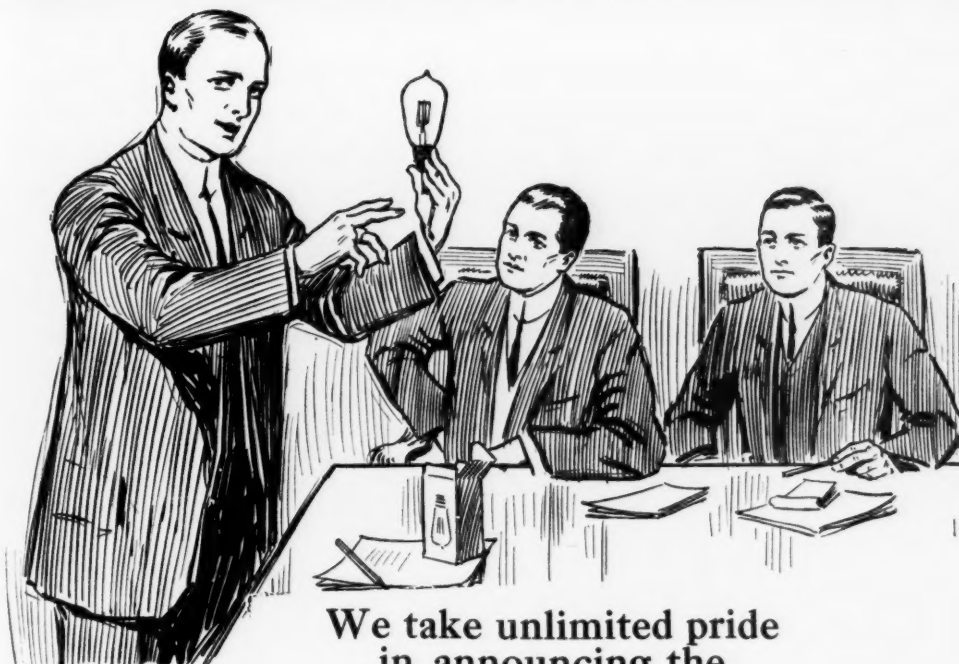
The Opalux Company, 258 Broadway, New York

A Few of the Larger Installations

Bellevue Hospital	New York
Chelsea Piers	New York
Fidelity and Casualty Building	New York
Public Schools	New York
Hall of Records	New York
Metropolitan Museum of Art	New York
Columbia University	New York
Queens County Court House	Long Island City
Prudential Building	Newark, N. J.
N. Y. & N. J. Telephone Bldg.	Newark, N. J.
University of Pittsburg	Pittsburg, Pa.
Carnegie Technical Schools	Pittsburg, Pa.
Soldiers' & Sailors' Memorial	Pittsburg, Pa.
U. S. Naval Training School	Chicago, Ill.
Y. M. C. A.	San Francisco, Cal.
Higgins Building	San Francisco, Cal.
First National Bank	El Paso, Texas
Supreme Court	Hartford, Conn.

We have enumerated but a few of the larger users of OPALUX. A list of installations in any special locality will be sent on request.

In writing to advertisers, mention "Selling Electricity"



We take unlimited pride
in announcing the

Banner Mazda Lamp

(With Wire Drawn Filaments)

THE ideal of years and the hope of lamp engineers everywhere has become a fact—tungsten wire has been drawn on a commercial scale in sizes suitable for lamp filaments. Banner Mazda has become a standard of ruggedness, of economy, of genuine Betterness.

Banner engineers have one more great reinforcement to assist them—a rugged Mazda Lamp. The Banner Mazda Lamp has now solved every lighting problem.

Literature concerning this lamp, containing all data as to performance tests, efficiency, comparative ruggedness, etc., will be furnished upon application.

The Banner Electric Company

Manufacturers of All Types of Banner Lamps
Youngstown, Ohio

In writing to advertisers, mention "Selling Electricity"

Perhaps some other lamp was "the best," according to your judgment ten years ago, but if you investigate the lamp situation today you must concede that the new



COLONIAL DRAWN-WIRE MAZDA LAMPS

Stand pre-eminent as representing both the largest development in lamp engineering and the highest standard of lamp manufacture.

The COLONIAL DRAWN-WIRE Mazda is rugged, reliable. It will stand all the abuse any lamp *should* stand.

When your next lamp contract is under consideration, it would be altogether worth your while to find out, by personal investigation, just how much quality there is in Colonial Lamps and just what we can do for you in the way of service.

Colonial Incandescent Lamp Company

Warren, Ohio

In writing to advertisers, mention "Selling Electricity"



This sign, one of the largest in the middle West, is just another characteristic example of Greenwood

Individuality

The spectacular features are unique. The various circles in the trade-mark revolve constantly: the words "Cook's Goldblume" flash on and off; the flames on the torches wave in exact imitation of actual fire. This sign is 54 by 68 feet and contains 3100 lamps of red, green, amber and white.

We're proud of this sign, but in cleverness of design, and quality of material it is simply characteristic of all our product.

The designers, engineers, sign-makers and erectors who built this great sign are at *your* service, to build signs for *you*. And whether you buy a small sign or a huge spectacular display, you get the same high grade of work. Let us submit sketches.

Greenwood Advertising Co.
Knoxville, Tenn.

In writing to advertisers, mention "Selling Electricity"

FOR SALE

By

Edison Electric Illuminating
Company *of* Brooklyn

Second-Hand

Apparatus and Material

In First-Class Condition

A number of A. C. and D. C. Motors, from $\frac{1}{4}$ h. p. to 133 h. p.,
110, 220 and 6600 volts, 2 and 3 phase, at low prices.

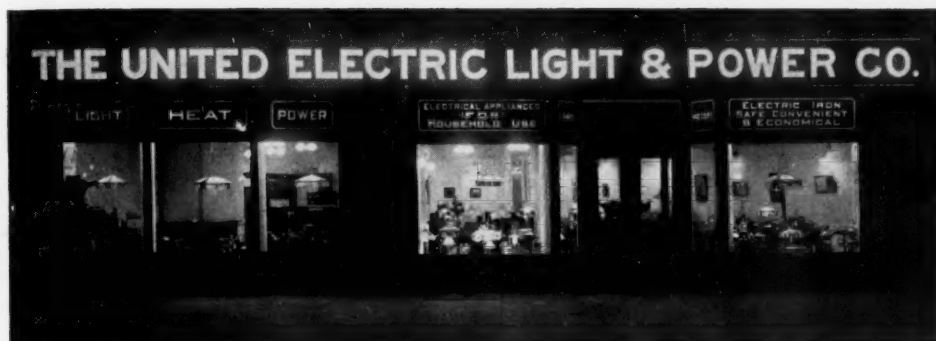
A number of Buffalo Forge Co. Blowers, of varying sizes; all in
excellent shape, ready for use.

Several hundred A. C. 1, 2, 3, 4 and 6-Glowar Nernst Lamps;
good as new, for sale cheap.

Eighteen drafting tables, good as new, at half price.

If interested in any of the above, communicate
or further details with

Purchasing Dept., 360 Pearl Steet, Brooklyn, N. Y.



The United Electric Light and Power Co.

Alternating Current Exclusively

From the Battery to the Harlem River

Borough of Manhattan,
City of New York

MAIN OFFICE
1170 Broadway, N. Y.
'Phone No. 4070 Mad. Sq

BRANCH OFFICE AND SHOWROOM
138 Hamilton Place, N. Y.
'Phone No. 4000 Audubon

In writing to advertisers, mention "Selling Electricity"

SECOND HAND

Engines, Generators and Boilers

Also Miscellaneous Apparatus

FOR SALE AT LOW PRICES

Any Central Station requiring this type of equipment, for either regular or auxiliary purposes, can obtain the apparatus advertised at bargain prices.

A 3000 HP. ROBERT WETHERILL CO. TWIN TANDEM COMPOUND CORLISS ENGINE, Cylinders 25 in. x 52 in. x 48 in. stroke, Speed 106 R.P.M.; DIRECT CONNECTED TO A 2000 KW. GENERAL ELECTRIC CO. ALTERNATING CURRENT GENERATOR; Type A.Q.B., Class 106, Form "E", 6600 Volts, 167 Amperes Per Phase, Speed 106 R.P.M. Exciting Current 220 Volts. WITH THE ABOVE IS INCLUDED 1 JET CONDENSER.

2 Greene Tandem Compound Condensing Engines, 17 in. x 33 in. x 48 in. Each 750 H.P., speed 100 R.P.M. The No. 1 engine has one belt fly wheel and one balance fly wheel. The belt fly wheel is 16 ft. 6 in. x 45 in. face, and the balance fly wheel is 18 ft. x 10 in. face. The No. 2 engine has two belt fly wheels and one balance fly wheel. One belt fly wheel is 15 ft. x 30 in. face, and the other belt fly wheel is 15 ft. x 38 in. face. The balance fly wheel is 18 ft. x 10 in. face.

The No. 1 engine is belted to a 400 kw. alternator. The No. 2 engine was formerly belted to a 240 kw. alternator. The alternators which were driven by these two Greene engines are also for sale. One is 400 kw. General Electric belt driven, alternating current, type A.Q.B., form A, class 20-400-360, amperes 80, volts 2500, speed 360, with 9 kw. General Electric exciter, type M.P., form H, class 4-9-1450-60 volts, 1450 R.P.M.

The other alternator is a Stanley belt driven, type T P., 240 kw., 2400 volts, 450 R.P.M., with one 4 kw. Crocker-Wheeler exciter, type D, size 7½, volts 65, speed 1100 R.P.M.

Both of the engines mentioned above can be direct connected, belt or rope drive.

ENGINES

3 Wetherill Twin Engines, 20 in. in diameter, 42 in. stroke, fly wheel 16 ft. diameter, 44 in. face. Weight of fly wheels 12 tons. Length of shaft from face to face of cranks, 14 ft. 7 in.; centre to centre of cylinders, 15 ft. Length of engines from cylinder head to centre of crank, 19 feet. All three engines have sole plates 21 ft. wide and 23 ft. 8 in. long, oil cups, lubricators, dashers and pans of brass complete. They are in A No. 1 condition, and the cylinders have never been bored.

Your attention is called to the following good points of these engines: they were all built extra heavy throughout, steel cranks, steel cross-heads, steel bell cranks, steel brackets, phosphor-bronze bearings throughout, and built under the immediate supervision of the Chief Engineer of the plant, to his own specifications.

SHAFTING

One length of shafting for each engine, 5½ in. in diameter, 21 ft. 7 in. long, with four pulleys 5 ft. in diameter and 15 in. face, with split hubs and four bearings on each line of shafting, with heavy plates 4 ft. 3 in. long and 24 in. wide.

PUMPS

3 Davis Double Plunger Pumps, 6 in. x 6 in. plunger.

HEATERS

3 Coil Heaters, 15 ft. long, 30 in. in diameter, each filled full of 3 in. extra heavy iron pipe.

BOILERS

14 Tubular boilers, manufactured by John S. Naylor (Peoples' Works), Philadelphia, 48 in. in diameter and 20 ft. long, with 22 5 in. tubes in each boiler. Boilers are set two in each furnace, steam gauge and water column for each boiler complete; safe working pressure 132 lbs. per square inch, last inspection, which was made by the Fidelity Casualty and Insurance Company of New York.

With the above engines and boilers, we also offer the following Steam Pipe, Exhaust Pipe, Water Pipe and Valves:

ENGINE ROOM

About 150 ft. of 8 in. steam pipe, extra heavy
45 ft. of 1½ in. steam pipe.
20 ft. of 1 in. steam pipe.

3 Chapman Valves, 8 in. extra heavy.

About 33 ft. of 16 in. Exhaust Pipe; spiral.
72 ft. of 16 in. Exhaust Pipe; iron.
72 ft. of 10 in. Exhaust Pipe; iron.

BOILER ROOM

About 77 ft. of 12 in. steam pipe.
3 ft. of 10 in. steam pipe.
21 ft. of 8 in. steam pipe.
144 ft. of 6 in. steam pipe.
144 ft. of 5 in. steam pipe.

4 12 in. Chapman Valves, extra heavy.
1 10 in. Chapman Valve, extra heavy.

About 230 feet of 6 in. water pipe.
35 ft. of 5 in. water pipe; extra heavy.
315 ft. of 4 in. water pipe; extra heavy.
173 ft. of 3 in. water pipe; extra heavy.
70 ft. of 2½ in. water pipe; extra heavy.

1 flue, 78 ft. long, 5 ft. deep, 7 ft. 6 in. wide.
1 Chapman Gate Valve, extra heavy, 5 in.
2 Chapman Gate Valves, extra heavy, 4 in.
16 Chapman Gate Valves, extra heavy, 3 in.
9 Ludlow Valves, extra heavy, 6 in.
About 900 ft. assorted sizes oil pipe line.

If interested communicate promptly with H. C. LUCAS, Purchasing Agent, at address given below. Full particulars forwarded you upon request, together with prices. We will be glad to make appointments for inspection of any or all of this apparatus.

THE PHILADELPHIA ELECTRIC COMPANY

Tenth and Chestnut Streets, Philadelphia, Pa.

In writing to advertisers, mention "Selling Electricity"

The Narragansett Electric Lighting Co.

*The Narragansett Electric
Lighting Company extends a cor-
dial invitation at all times to
visiting Central Station Men to
inspect its Sales and Operating
Departments.*

Providence, R. I.

Executive Office: Union Trust Co. Bldg.

Public Utility Securities

COMMON STOCK
for Speculation

PREFERRED STOCK
for Investment

**You Can Make Money
in Either**

Let Us Show You How

Williams, McConnell & Coleman
BONDS **STOCKS**

60 Wall Street, New York

Phone 495 John



The City of Magnificent Views!
The City of Perfect Climate!
The City of Cordial Hospitality!
Drinking Water from Mount Hood!
(Illustrated above.)
The City of Many Beautiful Buildings!

National
Electric Light Association

We Invite You to
PORTLAND
1912

Portland Railway, Light & Power Company
Pacific Power & Light Company

In writing to advertisers, mention "Selling Electricity"

H. M. BYLLESBY & CO.

Engineers Managers
Design Construct
Operate

Electric Light Plants
Street Railways
Interurban Railways
Water Power Plants
Transmission Systems

Artificial Gas Systems
Natural Gas Systems
Irrigation Systems
Water Works
Drainage Systems

Engineering, Commercial,
Legal Examinations
and Reports

206 South La Salle Street

Portland, Ore.
Oklahoma City, Okla.

CHICAGO

Mobile, Ala.
San Diego, Calif.

Montgomery Alabama

offers ideal opportunities
to manufacturers of Elec-
trical Apparatus and
Equipment who desire
factory sites.

WRITE TO

The Business Men's League
of Montgomery for details

The 75 Per Cent. Waste

An advertising expert recently estimated that the average electric company wastes seventy-five cents out of every dollar spent in newspaper space. This is not the fault of advertising or the media employed, but of the company itself.

Its manager, the head of the new business department, the plant superintendent—everybody, in fact, but the person who outlines and prepares its advertising—knows or is supposed to know the work he is required to perform. Economy and scientific management are practiced in every department but the one upon which the future development of the business depends.

This development, by the way, cannot be accomplished by purposeless advertising, listless copy, or the use of "canned goods"—stock ads and manufacturers' cuts. It must be brought about by a carefully planned and skillfully conducted campaign, local to each particular community.

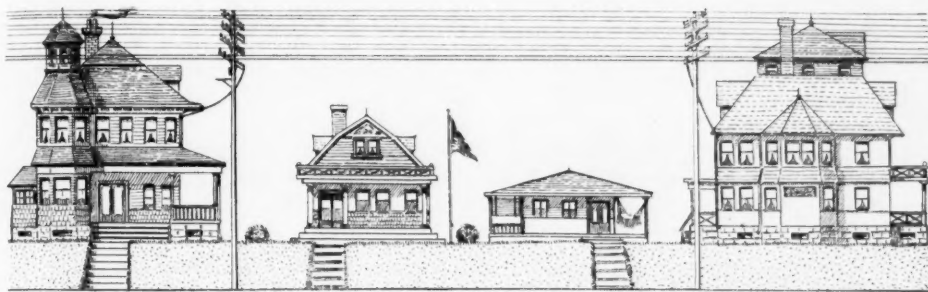
The C. W. Lee Company, which by means of **CONSTRUCTIVE PUBLICITY**, has long been engaged in the business of moulding public opinion in rate, franchise, competitive and municipal ownership controversies, is now employing the methods which have been so successful in this field in the new one of **COMMERCIAL DEVELOPMENT**.

During the past year The C. W. Lee Company has had charge of the commercial advertising of a number of syndicates and prominent individual plants and in each case has secured results of the most convincing character. What has been accomplished for these companies can be accomplished for yours.

The C. W. Lee Company

West Street Building, New York

In writing to advertisers, mention "Selling Electricity"



THERE'S PROFIT IN THE SMALL RESIDENCE

One of the biggest Central Station opportunities today is the INTENSIVE cultivation of the market. Instead of extending your lines and increasing your investment, develop the small residence customer and get all the profit the present lines can give.

It's simply a question of the right proposition.

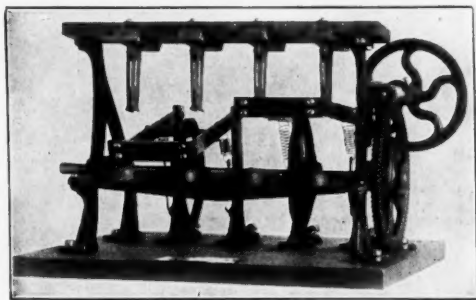
Flat rates, with the EXCESS INDICATOR, are both attractive to your small residences and SAFE for you.

Let us send you the names of forty Central Stations which have found the EXCESS INDICATOR both a profitable means of getting business and a means of getting profitable business.

EXCESS INDICATOR COMPANY

105 WEST 40th St., NEW YORK

FOR TUNGSTEN LAMPS DULL FLASHERS HAVE NO EQUAL



No. 220. Knife Type, List \$21.00

Our Knife Type machine is the ideal one for Tungsten Lamps. Actual demonstration and use has proven that you can overload some of these machines 200 per cent. in amperes at 10 volts without the slightest injury.

**They will stand a heavier overload than any other flasher now on the market.
They give the most perfect results possible with the least attention.**

REYNOLDS DULL FLASHER CO.

16-20 SOUTH FIFTH AVENUE, CHICAGO

Thirty-Five (35) Live Central Stations

Who appreciate a good thing when they see it, are distributing the Electric City Magazine among their customers, actual and prospective, monthly, with good results.

The Electric City Magazine is not an experiment—now in its ninth year of publication. It is not merely an advertisement but an *educator*—creates a demand for your product—molds public opinion in your favor. Those stations

Now Using The Electric City Magazine As a Booster

are using it because *it pays*.

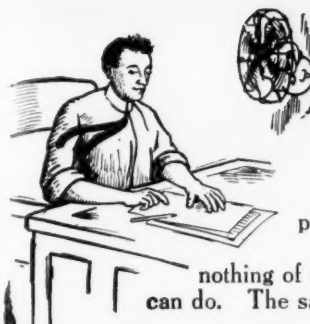
We have an especially attractive offer to make you on this proposition. We give you the benefit of an attractively printed magazine at a small fraction of the actual cost to produce. You cannot afford to be without this most valuable aid in securing new business.

Write for our proposition today.

Electric City Publishing Company

Electric Block, 28 North Market Street

Chicago, Illinois



Which Would You Rather Be ?

If you were one of these two men would you change places with the other for a difference of half a cent an hour?

The comfort alone is worth many times that amount, to say nothing of the difference it makes with your disposition and the work you can do. The same thing is true of your customers and

Now is the Time to Talk Fort Wayne Fans

Most all electric fans are on a par as far as appearance and guarantees are concerned, but there's a mighty big difference in their performance, and that's just where Fort Wayne Fans are strong.

We make a size and type for *every use* and it will pay you to send for a supply of our free 32-page illustrated booklets and distribute them to your customers.

At least send for a copy for your own use.

FORT WAYNE ELECTRIC WORKS

"Woods Systems"

1636 Broadway, Fort Wayne, Ind.

Branch offices most large cities



You Don't Have to Pay for Selling Electricity

Send Us a Dollar Idea

And We Mail You the Magazine Free for One Year



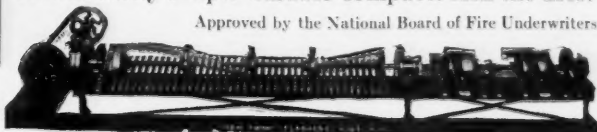
BETTS & BETTS

304 W. 53d Street, New York, U.S.A.

Pacific Coast Office: 808 Oak. Bk. of Sav. Bldg., Oakland, Cal.

There is no argument when you study *these points*: 1. Ball bearings throughout. 2. Self-oiling. 3. Frequent attention unnecessary. 4. No slate bases to break or knife switches to stick. 5. Extremely simple-durable-compact. Ask the user.

Approved by the National Board of Fire Underwriters



Patents Pending

Made by Makers of **COLOR CAPS**

In writing to advertisers, mention "Selling Electricity."

Mr. Manufacturer!

Have You

Ever Stopped

To Consider

WHY?

There are So Many Factories
Located in Lockport, N. Y.

WHY?

Eleven New Ones Located There
In the Past Thirty-Six Months

We Know What Appeals to YOU
and We Are at Your Service

With

CHEAP
RELIABLE
UNLIMITED

POWER

Lockport Light, Heat and
Power Company

Lockport, N. Y.



The Ham Attachment

Most convenient
wiring device
brought out in
the last decade

Patented November 17, 1908

For sale by all jobbers

E. W. HAM,

5 Barton
Place

Worcester, Mass.

THE TALKING SIGN

MASON MONOGRAMS

WILL BOOST YOUR BUSINESS

As well as it helped to enlarge our business.
We are moving into a larger factory and our
facilities for making ELECTRIC SIGNS of
every kind will be unequalled anywhere.

Write us today about that sign you need.

THE WALL-WIN CO.

61-63 HUDSON ST., JERSEY CITY, N. J.

One minute from the Pennsylvania Station and McAdoo Tube.

In writing to advertisers, mention "Selling Electricity."

If Your Neighbor Has Electric Light

and you have not, just step into his house some evening after dark and compare its light with your own. Study each point of convenience, cleanliness, clearness, beauty, carefully and then figure out for yourself if it would not pay you well to have your house wired for electric light this spring.

Call Bell Main 2401

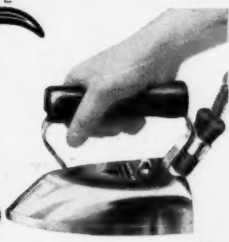
Cuyaboga Cent. 5860

The Illuminating Company

Sales Department:

232 Superior Avenue, N. E.
Cleveland, Ohio

"American Electric Ironing"



Here is the youngest electric iron on the market. It is made by the oldest manufacturers of electric heating devices. This new iron is known as

"American Beauty"

weight is 6½ pounds—therefore suitable for all round household or laundry use.

It is all that the name implies. Finished entirely in polished nickel and of attractive design it first pleases the eye.

It is simple in construction—can be entirely taken apart or assembled with no tools but a wrench.

Efficiency and satisfaction to the user it has—beyond any iron yet made.

Guarantee—So durable and strong is it that it is guaranteed for three years.

Learn more about it by ordering a sample—at least. Knowledge of it means you will want it for your customers.

American Electrical Heater Co.

1351 Woodward Ave.

Detroit, U. S. A.

Oldest and largest exclusive makers.



100% Load Factor

—the ambition of every station man.

You would like to get as near that as possible and you are now cultivating a day load among the customers you already have:—Good work! *Keep it up!*

At the same time you would not refuse **New Lighting Business** if you could assure yourselves from the start of a handsome revenue per kilo-watt of capacity tied up?

If you find you can get better returns by developing it into full electrical service afterwards, **WHY, GO TO IT!** By all means.

But get it connected up first!

There is plenty of this business to get if you go after it right.



And our instrument will help you get *your* share of it.

BUT DO IT NOW—

"You will never turn your wheels with water that has passed."

Don't forget this.

Henry Thermo-Electric Co.

3 Scott Ave. Newport, Vermont.

CUTLER-HAMMER



Electric Shaving Mug



Curling Iron Heater

CUTLER-HAMMER
ELECTRIC
DISC
STOVE

Household Iron
5, 6 and 7-lb. sizesElectric Water Heater
3-quart size
Hot water in 45 sec.

HAS 100 USES

The Cutler-Hammer Disc Stove can be used for a hundred purposes in the household. In the kitchen, dining room, nursery or sick room it provides a greater convenience than any similar heating device.

The upper surface is seven inches in diameter and is quickly heated. Connection can be made to any lamp socket. For heating milk or broth, for making desserts, fudges, rarebits, etc., it is unsurpassed.

Every household should have one.

A Cutler-Hammer Iron installed in a neighborhood will be sure to be followed by other sales. This iron conforms to the housewife's idea of what an iron should be,—is simple in construction,—and requires no separate obstructive stand. The patented backstand which holds the iron clear of the board when not in use can also be adjusted to support the iron face up, in which position it may be used as a small electric stove for heating milk, water, etc. Heating units are guaranteed.

The 3-lb. Sleeve Iron has a detachable handle and can easily be carried in the suit case when traveling.

It is also well suited for ironing baby dresses, fancy waists, laces, doilies, etc.

The Electric Shaving Mug and Curling Iron Heater are especially convenient in the hot summer months.

And don't forget the Electric Water Heaters. The three-quart size is particularly adapted for the home, while the four-quart heater is better adapted for the soda counter, bar or restaurant. You can draw steaming hot water 45 seconds after the current is turned on.

Many of the largest and most progressive central stations, supply houses and contractors in all parts of the country are now handling Cutler-Hammer Heating Devices. If you are not,—send in a trial order now. We can help you with attractive literature imprinted with your name.

Our 32-page booklet describes and illustrates our entire line. Our nearest office will mail you a copy on request.

The Cutler-Hammer Mfg. Co., Milwaukee

NEW YORK: Hudson Terminal (50 Church St.)
PITTSBURG: Farmers' Bank Bldg.
PHILADELPHIA: 1201 Chestnut St.

CHICAGO: Peoples Gas Bldg.
BOSTON: 176 Federal St.
CLEVELAND: Schofield Bldg.

PACIFIC COAST AGENTS: Otis & Squires, 579 Howard St., San Francisco
Agents for Southern California: W. B. Palmer, 416 East 3rd St., Los Angeles.

In writing to advertisers, mention "Selling Electricity"

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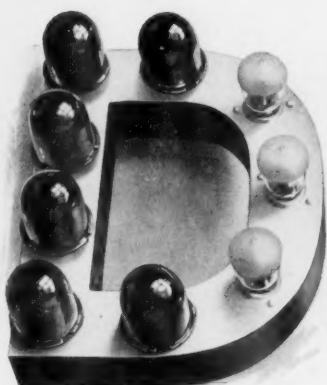
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THE A. & W. COLOR SHADES
(Patent Applied For)



THE A. & W. COLOR SHADE AND
HOLDER ATTACHED TO LAMP

Brighten That Electric Sign

A sign that has lost its novelty by long use can be made like new by adding a touch of color.

The new A. & W. Color Shades are made of Natural Colored glass in bright, live colors, that will not fade from the effect of Mazda lights or weather. They cover the entire lamp and are better than natural colored lamps, being made in brighter colors.

*Order enough today to change your sign and
tell your merchants how you did it.*

Made in Ruby, Green and Amber.

Sample furnished on request.

List Price 30 cents each.

The A. & W. Electric Sign Company
Cleveland, Ohio

In writing to advertisers, mention "Selling Electricity"

A Lesson in Electrical Advertising

BY VALENTINE

A six-dollars-a-week clerk can write advertisements—of a sort.

But in Chicago there's a man who earns a thousand dollars a week because he knows how to write **effective** advertisements.

Which proves that there's something besides penmanship in advertising.

□ □ □ □ □ □

Any sign painter or tinsmith can make an electric sign—of a sort.

But the Valentine Electric Sign Company receives from 10% to 100% more than the tinsmith because Valentine signs are **effective** Electrical Advertisements.

Which proves that there's something besides paint and wire and lamps in Electrical Advertising.

□ □ □ □ □ □

If you are interested in Electrical Advertising—if you want the signs in your city to be **effective**, sales-producing, satisfaction-breeding examples of advertising art, forget the penny-saving tinsmith and give your business to a concern that has a reputation for **results**.

Although Valentine was the first, and is today the foremost Electrical Advertising Expert, Valentine prices are really no higher than you **should** pay for well-built signs.

Valentine Electric Sign Company

Atlantic City, New Jersey